



## Bilaga till rapport

Dialektisk beteendeterapi och Mentaliseringsbaserad terapi

- Effekter hos personer utan diagnosen Emotionellt instabilt personlighetssyndrom
- Effekter hos personer med bulimi eller hetsättningsstörning
- Effekter av behandling som enbart innehåller färdighetsträning i grupp

Dialectical Behavior Therapy (DBT) and Mentalization-Based Therapy (MBT)

- Effects in patients with self-harming behaviour with and without a diagnosis of Borderline Personality Disorder, and in patients with Bulimia Nervosa or Binge Eating Disorder
- Effects of DBT and MBT that only include group therapy

Rapport 385 (2024)

### Bilaga 3 Tabell över inkluderade studier

<b>Adolescents with BPD receiving DBT</b>	
No studies included	
<b>Adults with BPD receiving DBT</b>	
Linehan 1999 [1], USA, RCT	
Risk of bias	Some concerns
Setting	Outpatient
Recruitment	Referral by area clinicians
Population	Women between 18 and 45 years (mean age 30 at baseline) with BPD and substance use disorder.
Exclusion criteria	Schizophrenia, Psychotic Disorder, Bipolar Mood Disorder, mental retardation
Follow up	16 months
Intervention	12-month Dialectical Behavior Therapy. Individual psychotherapy and group skills training. Participants (12) Drop-outs from treatment (4) Individuals with data at EOT (12)
Comparison	12-month treatment as usual, designed to control for several key threats to internal validity, including time and attention. Participants (16) Drop-outs from treatment (5) Individuals with data at EOT (16)
Outcomes	There were no between-group differences regarding parasuicide episodes, GSA, GAS, or anger at EOT (12-months).  <b>Outcomes at 16-months follow up:</b>  <b>Parasuicide</b> <b>Parasuicide episodes</b> <i>No values available</i> $F(3,39) = 3.96, p < 0.02$ (DBT better)  <b>Psychosocial functioning</b> <b>Global Assessment Scale (GAS) (last week's score, higher scores better), mean scores (SD):</b> <i>Baseline values not available</i> DBT M = 62 (10) TAU M = 44 (10) $F(1,12) = 22.19, p < .001$  <b>Emotion regulation</b>

	<p><b>State anger:</b> No values available F (3,36) = 6.88, p &lt;0.01 (DBT better)</p> <p><b>Trait anger:</b> No values available F (3,32) = 6.41, p &lt;0.01 (DBT better)</p>
<b>Comments</b>	Participants with co-morbid substance use disorder selected
<b>Bianchini 2019 [2], Italy, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	High intensity therapeutic facilities—the Residenze per l'Esecuzione delle Misure di Sicurezza (REMS)
<b>Recruitment</b>	Participants were recruited from men consecutively detained as patients in the three REMS of Roma 5 Department of Mental Health
<b>Population</b>	Male forensic psychiatric in-patients (average age of 41.79 ±8.14) years with borderline personality disorder and a history of violence to others
<b>Exclusion criteria</b>	cognitive deficit (QI < 70) and/or comorbid neurological diseases
<b>Follow up</b>	
<b>Intervention</b>	Treatment: 12 months of standard DBT along with other therapies available in the high security hospital (pharmacotherapy, social skills, and cognitive remediation) Participants (10) Drop-outs (0) (All participants completed at least 90% of the DBT sessions offered).
<b>Comparison</b>	Treatment: 12 months of usual therapies alone (pharmacotherapy, social skills, and cognitive remediation) Participants (11) Drop-outs (0) (All participants completed at least 90% of the DBT sessions offered).
<b>Outcomes</b>	<p><b>Pre intervention/post intervention (12 months) assessments</b></p> <p><b>Difficulties In Emotion Regulation Scale (DERS-36) Total score M (SD)</b> DBT: baseline 56.6 (11.77), 12 mo 65.6 (9.40), p= 0.04 TAU: baseline 52.9 (19.52), 12 mo 65.1 (15.57), p= 0.22</p>
<b>Comments</b>	
<b>Carter 2010 [3], Australia, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	Clinical outpatient unit
<b>Recruitment</b>	Consecutive
<b>Population</b>	Adult women with BPD and a history of multiple episodes of deliberate self-harm. Mean age 25 (SD 6) years.
<b>Exclusion criteria</b>	Disabling organic condition, schizophrenia, bipolar affective disorder, psychotic depression, florid antisocial behaviour, or developmental disability.
<b>Follow up</b>	6 months (EOT)
<b>Intervention</b>	6-month DBT Participants (38) Drop-outs from treatment (18) Available data at EOT (38)
<b>Comparison</b>	6-months TAU Participants (35) Drop-outs from treatment (4) Available data at EOT (35)
<b>Outcomes</b>	<p><b>Outcomes at EOT:</b></p> <p><b>Self-harm</b> <b>Proportion with at least one hospital admission due to deliberate self-harm (DSH):</b> DBT: 21.1 %</p>

	<p>TAU: 25.7 % Chi-squared = 0.22</p> <p><b>Mean number (SD) of hospital admissions due to DSH:</b> DBT: 0.50 (1.54) TAU: 1.40 (4.47) IRR: 0.36 (0.09–1.43)</p> <p>Results from per protocol analyses not extracted due to high risk of bias</p>
<b>Comments</b>	
<b>Feigenbaum 2012 [4], UK, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	Outpatient specialist service for PDs, inner-city London.
<b>Recruitment</b>	Referrals
<b>Population</b>	Adults (18-65 years) with BPD, mean age (SD) 35 (8) years. 73 % female.
<b>Exclusion criteria</b>	Long-term psychotherapeutic treatment, psychotic disorder, bipolar I disorder, opiate dependence requiring specialist treatment, mental impairment, organic brain disorder.
<b>Follow up</b>	12 months (EOT)
<b>Intervention</b>	12-month DBT Participants (26) Drop-outs from treatment (15) Available data at EOT (25)
<b>Comparison</b>	12-month TAU Participants (16) Drop-outs (2) Available data at EOT (16)
<b>Outcomes</b>	<p><b>Self-harm</b> <b>Frequency of deliberate self-harm in the last 6 months, mean (SD):</b> DBT: Baseline 4.1 (4.3), EOT 2.4 (3.2) TAU: Baseline 7.8 (4.7), EOT 3.1 (3.4) F (1.9, 70.7) = 1.2, ns</p> <p><b>Suicide attempts</b> <b>Frequency of suicide attempts in the last 6 months, mean (SD):</b> DBT: Baseline 0.4 (0.50), EOT 0.24 (0.43) TAU: 0.5 (0.51), EOT 0.06 (0.25)</p> <p><b>Emotion regulation</b> <b>Overt Aggression Scale (OAS) - aggression, mean score (SD):</b> DBT: Baseline 9.8 (4.22), EOT 8.1 (3.37) TAU: Baseline 12.3 (4.16), EOT 12.7 (4.18) F (1.7, 56.1) = 1.0, ns</p> <p><b>Overt Aggression Scale (OAS) - irritability, mean score (SD):</b> DBT: Baseline 4.4 (2.96), EOT 4.4 (2.84) TAU: Baseline 3.9 (2.25), EOT 4.4 (2.21) F (1.7, 57.6) = 1.0, ns</p> <p><b>State and trait anger expression - Spielberger Anger Scale (STAXI), mean score (SD):</b> DBT: Baseline 90.5 (17.15), EOT 83.4 (20.36) TAU: Baseline 90.1 (12.49), EOT 83.3 (17.94) F (1.5, 59.2) = 1.0, ns</p> <p><b>Psychosocial functioning</b> <b>Clinical outcomes in routine evaluation – outcome measure (CORE-OM) – functioning, mean score (SD):</b> DBT: Baseline 2.63 (0.83), EOT 2.48 (0.85) TAU: Baseline 2.51 (0.61), EOT 2.22 (0.92)</p>

	<p>F (1.7, 70.6) = 1.0, ns</p> <p><b>Depression</b>  <b>Beck Depression Inventory-II (BDI-II), mean score (SD):</b>  DBT: Baseline 35.2 (9.7), EOT 32.2 (12.8)  TAU: Baseline 33.3 (9.7), EOT 28.1 (13.7)  F (1.5, 59.2) = 1.0, ns  <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i>  <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p>
<b>Comments</b>	
<b>Koons 2001 [5], USA, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	Outpatient
<b>Recruitment</b>	Through primary care clinic in Veteran Affairs Medical Center
<b>Population</b>	Female veterans with BPD, mean (SD) age 35 (7) years
<b>Exclusion criteria</b>	Schizophrenia, bipolar disorder, substance dependence, and antisocial personality disorder.
<b>Follow up</b>	EOT (6 months)
<b>Intervention</b>	6-month DBT Participants (14) Drop-outs (4)
<b>Comparison</b>	6-month TAU Participants (14) Drop-outs (4)
<b>Outcomes</b>	<p><b>BPD severity</b>  <b>BPD Criteria (DSM-III-R, SCID-II), mean score (SD):</b>  DBT: Baseline 6.8 (1.1), EOT 3.6 (1.6)  TAU: Baseline 6.7 (0.8), EOT 4.2 (2.3)  F (1,18) = 0.79, ns</p> <p><b>Parasuicidal behaviour</b>  <b>Parasuicide History Interview, mean score (SD):</b>  DBT: Baseline 5.1 (13.2), EOT 0.4 (1.3)  TAU: Baseline 0.7 (1.3), EOT 1.0 (2.2)  F (2, 36) = 2.44, p &lt; 0.1</p> <p><b>Suicidal ideation</b>  <b>Beck Scale for Suicide Ideation, mean score (SD):</b>  DBT: Baseline 36.2 (13.5), EOT 26.2 (8.0)  TAU: Baseline 44.6 (11.4), EOT 41.5 (14.3)  F (2, 36) = 3.71, p &lt; 0.05</p> <p><b>Depression</b>  <b>Beck Depression Inventory, mean score (SD):</b>  DBT: Baseline 22.8 (11.1), EOT 13.4 (7.5)  TAU: Baseline 34.7 (14.6), EOT 29.3 (17.7)  F (2, 36) = 3.7, p &lt; 0.05</p> <p><b>Hamilton Depression Rating Scale, mean score (SD):</b>  DBT: Baseline 29.7 (13.7), EOT 17.1 (5.7)  TAU: Baseline 32.6 (9.7), EOT 24.3 (7.8)  F (2, 36) = 0.71, ns</p> <p><b>Anxiety</b>  <b>Hamilton Anxiety Rating Scale, mean score (SD):</b>  DBT: Baseline 18.4 (7.3), EOT 19.1 (7.5)  TAU: Baseline 27.7 (9.3), EOT 32.2 (12.4)  F (2, 36) = 1.32, ns</p> <p><b>Emotion regulation</b></p>

	<p><b>Spielberger Anger Expression Scale – Anger in, mean score (SD):</b> DBT: Baseline 22.9 (5.7), EOT 17.3 (4.0) TAU: Baseline 20.5 (4.7), EOT 19.2 (6.2) F (2, 36) = 1.71, ns</p> <p><b>Spielberger Anger Expression Scale – Anger out, mean score (SD):</b> DBT: Baseline 18.2 (5.7), EOT 14.5 (3.9) TAU: Baseline 17.2 (5.8), EOT 17.9 (6.1) F (2, 36) = 5.89, p &lt; 0.01</p>
<b>Comments</b>	
<b>Kramer 2016 [6], Switzerland, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	Outpatient university psychiatry clinic
<b>Recruitment</b>	Advertisement within the psychiatry department where the study took place, in addition to information in the community.
<b>Population</b>	Adults with BPD. Mean (SD) age 35 (9) years. 88 % female.
<b>Exclusion criteria</b>	Psychotic disorder, mental retardation, previous DBT treatment. were excluded from the study.
<b>Follow up</b>	EOT
<b>Intervention</b>	6-month Dialectical behavior therapy - informed skills training (DBT-ST) In addition to TAU (psychiatric treatment, psychotherapy) Participants (21) Drop-outs from treatment (5) Participants contributing with data at EOT (21)
<b>Comparison</b>	6-month TAU Participants (20) Drop-outs from treatment (5) Participants contributing with data at EOT (20)
<b>Outcomes</b>	<p><b>Psychosocial function</b> <b>Outcome Questionnaire—45.2 - Domain Social Role (lower scores better):</b> DBT-ST: Baseline 15.81 (6.47), EOT 12.76 (7.79) TAU: Baseline 14.74 (5.14), EOT 16.00 (5.42)</p> <p><b>Difficulties with relationships</b> <b>Outcome Questionnaire—45.2 - Domain Interpersonal relations (lower scores better):</b> DBT-ST: Baseline 22.81 (7.30), EOT 21.05 (8.48) TAU: Baseline 22.15 (6.54), EOT 21.70 (7.65)</p>
<b>Comments</b>	
<b>Linehan 1991 [7], USA, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	Outpatient
<b>Recruitment</b>	Clinical referrals
<b>Population</b>	Adults (age 18-45) with BPD and at least 2 incidents of parasuicide in the last 5 years, with 1 during the last 8 weeks. Mean age not stated. 100 % female.
<b>Exclusion criteria</b>	Schizophrenia, bipolar disorder, substance dependence, or mental Retardation.
<b>Follow up</b>	12 months (EOT)
<b>Intervention</b>	DBT Participants (22) Drop-outs (2)
<b>Comparison</b>	TAU Participants (22) Drop-outs (9)
<b>Outcomes</b>	<p><b>Parasuicide</b> <b>Number of parasuicidal acts during 12-month follow-up, mean (SD):</b> DBT: Baseline 0 (0), EOT 6.82 (12.35)</p>

	<p>TAU: Baseline 0 (0), EOT 33.54 (69.97)</p> <p><b>Percentage with at least one parasuicidal acts during 12-month follow-up:</b>  DBT: Baseline 100%, EOT 63.6 %  TAU: Baseline 100%, EOT 95.5 %  <math>z = 2.26, p &lt; 0.005</math></p> <p><b>Suicidal ideation</b>  <b>Scale for suicide ideation (SSI), mean score (SD):</b>  No values, ns.  <b>Reasons for Living Inventory (RLI), mean score (SD):</b>  No values, ns.</p> <p><b>Depression</b>  <b>Beck Depression Inventory (BD), mean score (SD):</b>  No values, ns.</p>
<b>Comments</b>	
<b>Linehan 1994 [8], USA, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	Outpatient
<b>Recruitment</b>	Clinical referrals
<b>Population</b>	Women between the ages of 18 and 45 years (mean 26.7 SD 7.8) with borderline personality disorder (DSM-II-R criteria). All subjects had at least two instances of parasuicidal behavior within the past five years, one within 8 weeks before study recruitment
<b>Exclusion criteria</b>	Schizophrenia, bipolar disorder, primary substance dependence or mental retardation
<b>Follow up</b>	EOT
<b>Intervention</b>	Treatment: 12-month DBT Participants (13) Drop-outs (3)
<b>Comparison</b>	Treatment: 12-month TAU Participants (13) Drop-outs (1)
<b>Outcomes</b>	<p><b>Emotion regulation</b>  <b>State-Trait anger scale, anger trait subscale, mean (SD), (ITT)</b>  DBT: baseline 36.77 (8.17), posttreatment 32.15 (7.19)  TAU: baseline 38.46 (7.66), posttreatment 40.08 (8.37)  <math>F=6.93 p&lt;0.01</math></p> <p><b>Psychosocial functioning</b>  <b>Global assessment scale (GAS), mean (SD), (ITT)</b>  DBT: baseline 37.73 (7.53), posttreatment 51.42 (9.71)  TAU: baseline 33.77 (9.50), posttreatment 40.43 (10.80)  <math>F=5.49 p&lt;0.01</math></p> <p><b>Social adjustment scale, longitudinal interval follow-up evaluation and adjustment, mean (SD) (ITT)</b>  DBT: baseline 4.14 (0.71), posttreatment 3.31 (0.72)  TAU: baseline 4.31 (0.70), posttreatment 3.93 (0.70)  <math>F=4.86 p&lt;0.05</math></p>
<b>Comments</b>	Assessments conducted at baseline, 4 mo, 8 mo and 12 mo, results presented are from post treatment (12 mo) or the assessment closest to termination
<b>McMain 2009 [9], Canada, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	teaching hospital
<b>Recruitment</b>	

<b>Population</b>	Adults (86.1% women) meeting DSM-IV criteria for borderline personality disorder between 18 and 60 years old (mean 30.4 SD=9.9) and had at least two suicidal or nonsuicidal self-injurious episodes in the past 5 years, with at least one occurring in the past 3 months
<b>Exclusion criteria</b>	DSM-IV diagnosis of a psychotic disorder, bipolar I disorder, delirium, dementia, or mental retardation or a diagnosis of substance dependence in the preceding 30 days; having a medical condition that precluded psychiatric medications; living outside a 40-mile radius of Toronto; having any serious medical condition likely to require hospitalization within the next year (e.g., cancer); and having plans to leave the province in the next 2 years
<b>Follow up</b>	Se nedan McMain 2012
<b>Intervention</b>	Treatment: 12-month DBT Participants (90) Drop-outs (35) (90 in analysis)
<b>Comparison</b>	Treatment: 12-month general psychiatric management (GPM) Participants (90) Drop-outs (34) (90 in analysis)
<b>Outcomes</b>	<p><b>Suicidal and self-injurious episodes, mean (SD)</b> DBT: Baseline 20.94 (33.28), 4 mo 10.60 (20.96) 8 mo 8.94 (19.07), 12 mo 4.29 (9.32) GPM: Baseline 32.19 (81.94), 4 mo 14.02 (43.87), 8 mo 11.44 (37.59), 12 mo 12.87 (51.45) Group effect OR 0.92, p=0.76</p> <p><b><i>Suicide attempts</i></b> <b>Emergency department visits for suicidal behaviour, mean (SD):</b> DBT: Baseline 1.01 (1.47), 4 mo 0.74 (2.89), 8 mo 0.29 (0.67) , 12 mo 0.41 (1.00) GPM: Baseline 0.77 (1.65), 4 mo 0.30 (0.71), 8 mo 0.23 (0.59), 12 mo 0.29 (1.13) Group effect OR 1.35, p=0.46</p> <p><b><i>Borderline symptom severity</i></b> <b>Zanarini Rating Scale for Borderline Personality Disorder, total score (SD):</b> DBT: Baseline 15.49 (6.14), 4 mo 10.50 (5.98) 8 mo 8.57 (6.20), 12 mo 7.93 (6.11) GPM: Baseline 14.94 (6.59), 4 mo 9.86 (5.29) 8 mo 9.36 (5.83), 12 mo 8.16 (5.79) Effect size (Pearson point-biserial correlations) 1.13</p> <p><b><i>Depression</i></b> <b>Beck Depression Inventory (BDI), mean (SD)</b> DBT: Baseline 37.19 (12.46), 4 mo 29.06 (15.01) 8 mo 24.16 (15.34), 12 mo 22.18 (16.14) GPM: Baseline 35.40 (10.60), 4 mo 28.28 (13.98) 8 mo 27.55 (15.53), 12 mo 24.83 (14.83) Effect size (Pearson point-biserial correlations) 1.10</p> <p><b><i>Emotion regulation</i></b> <b>Anger (State-Trait Anger Expression Inventory, anger expression-out subscore), mean (SD)</b> DBT: Baseline 17.92 (5.29), 4 mo 16.62 (5.73) 8 mo 16.03 (4.75), 12 mo 15.81 (5.19) GPM: Baseline 17.60 (5.51), 4 mo 17.35 (6.07) 8 mo 16.43 (5.61), 12 mo 15.96 (5.11)</p>

	<p>Effect size (Pearson point-biserial correlations) 0.35</p> <p><b>Difficulties with relationships</b></p> <p><b>Inventory of Interpersonal Problems–64, total score, mean (SD):</b>  DBT: Baseline 118.58 (43.85), 4 mo 111.34 (41.40) 8 mo 108.97 (44.37),  12 mo 100.24 (50.62)  GPM: Baseline 120.95 (37.30), 4 mo 113.95 (39.32) 8 mo 104.79 (42.50),  12 mo 101.58 (45.19)</p> <p>Effect size (Pearson point-biserial correlations) 0.47</p>
<b>Comments</b>	General psychiatric management was based on the APA Practice Guideline for the Treatment of Patients with Borderline Personality Disorder and manualized for this trial.
<b>McMain 2012 [10], Canada, RCT</b>	
<b>Setting</b>	Some concerns
<b>Recruitment</b>	
<b>Population</b>	Adults meeting DSM-IV criteria for borderline personality disorder between 18 and 60 years old (86.1% women) and had at least two suicidal or nonsuicidal self-injurious episodes in the past 5 years, with at least one occurring in the past 3 months
<b>Exclusion criteria</b>	DSM-IV diagnosis of a psychotic disorder, bipolar I disorder, delirium, dementia, or mental retardation or a diagnosis of substance dependence in the preceding 30 days; having a medical condition that precluded psychiatric medications; living outside a 40-mile radius of Toronto; having any serious medical condition likely to require hospitalization within the next year (e.g., cancer); and having plans to leave the province in the next 2 years
<b>Follow up</b>	2-year naturalistic post-treatment follow up to McMain 2009 (Patients were assessed by blind raters 6, 12, 18, and 24 months after treatment). Baseline and 12 mo assessment below data from McMain 2009.
<b>Intervention</b>	12-month DBT Participants 90 Analyzed 24 months after EOT 85
<b>Comparison</b>	12-month GPM Participants 90 Analyzed 24 months after EOT 82
<b>Outcomes</b>	<p><b>Suicide attempts</b></p> <p><b>Number of Suicidal episodes, mean (SD)</b>  DBT: Baseline 1.30 (3.60), 12 mo 0.33 (1.31) 18 mo 0.27 (0.80), 24 mo 0.07 (0.26) 30 mo 0.14 (0.69), 36 mo 0.55 (2.42)  GPM: Baseline 1.86 (6.31), 12 mo 0.32 (2.09) 18 mo 0.54 (2.26), 24 mo 0.09 (0.33) 30 mo 0.24 (0.84) 36 mo 0.29 (1.15)</p> <p><b>Emergency department visits for suicidal behavior</b>  DBT: Baseline 1.01 (1.47), 12 mo 0.41 (1.00) 18 mo 0.16 (0.59), 24 mo 0.10 (0.30) 30 mo 0.12 (0.59), 36 mo 0.30 (1.22)  GPM: Baseline 0.77 (1.65), 12 mo 0.29 (1.13) 18 mo 0.23 (0.89), 24 mo 0.24 (0.79) 30 mo 0.18 (0.70), 36 mo 0.20 (0.58)</p> <p><b>Self-harm</b></p> <p><b>Number of no suicidal self-injurious behaviors, mean (SD)</b>  DBT: Baseline 21.65 (35.20), 12 mo 4.12 (9.23), 24 mo 2.48 (7.34), 36 mo 2.18 (7.77)  GPM: Baseline 20.41 (39.98), 12 mo 6.74 (19.70), 24 mo 2.06 (8.01), 36 mo 1.09 (4.31)</p> <p><b>Borderline symptom severity</b></p> <p><b>ZAN-BPD, total score (SD):</b>  DBT: Baseline 15.49 (6.14), 12 mo 7.93 (6.11) 18 mo 6.92 (5.54), 24 mo 8.17 (6.10) 30 mo 6.66 (5.24), 36 mo 8.29 (6.35)</p>



	<p>GPM: Baseline 14.94 (6.59), 12 mo 8.16 (5.79) 18 mo 8.35 (5.98), 24 mo 8.09 (5.89) 30 mo 7.82 (7.00), 36 mo 6.66 (5.49)</p> <p><b>Depression</b>  <b>BDI-II, mean score (SD):</b>  DBT: Baseline 37.15 (12.46), 12 mo 22.48 (16.20) 18 mo 21.00 (16.68), 24 mo 22.24 (16.40) 30 mo 20.76 (16.82), 36 mo 24.45 (18.65)  GPM: Baseline 35.4 (10.60), 12 mo 25.19 (15.05) 18 mo 23.05 (14.94), 24 mo 21.67 (14.82) 30 mo 19.31 (15.33), 36 mo 18.05 (13.77)  <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i>  <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p> <p><b>Emotion regulation</b>  <b>Anger (STAXI, Anger Expression Scale score), mean (SD)</b>  DBT: Baseline 17.92 (5.19), 12 mo 16.05 (5.50) 18 mo 16.13 (5.20), 24 mo 14.48 (4.41) 30 mo 15.70 (4.43), 36 mo 15.95 (4.80)  GPM: Baseline 17.6 (5.51), 12 mo 15.90 (5.10) 18 mo 15.38 (4.63), 24 mo 15.79 (5.12) 30 mo 14.84 (3.93), 36 mo 14.40 (3.47)</p> <p><b>Difficulties with relationships</b>  <b>Interpersonal functioning (IIP-64), total score (SD):</b>  DBT: Baseline 119.00 (44.02), 12 mo 100.85 (50.52) 18 mo 91.96 (45.76), 24 mo 94.93 (49.88) 30 mo 96.20 (48.22), 36 mo 94.48 (47.96)  GPM: Baseline 121.30 (37.13), 12 mo 102.99 (45.61) 18 mo 98.68 (45.58), 24 mo 97.11 (48.46) 30 mo 89.62 (47.40), 36 mo 84.36 (45.46)</p>
<b>Comments</b>	<p>Of the 180 participants who entered the original study, 30 (16.7%) failed to attend any follow-up assessments; 131 (73%), 128 (71%), 118 (66%), and 110 (61%) completed assessments at 18, 24, 30, and 36 months, respectively. Completion of all four follow-up assessments was achieved by 87 participants (48%).</p> <p>We conducted analyses on both the intent-to-treat population (N=180) and on the per protocol population, defined as the 167 participants who attended at least eight treatment sessions (dialectical behavior therapy, N=85; general psychiatric management, N=82).</p>
<b>Verheul 2003 [11], Van den Bosch 2005 [12], The Netherlands, RCT</b>	
<b>Risk of bias</b>	Some concerns in both studies
<b>Setting</b>	Outpatient
<b>Recruitment</b>	From mental health institutions (n = 39) and addiction treatment services (n = 19)
<b>Population</b>	Adult (18-65) females with BPD with (n = 31) and without (n = 27) substance abuse problems. Mean (SD) age 35 (8) years.
<b>Exclusion criteria</b>	Bipolar disorder, chronic psychotic disorder, severe cognitive impairments, insufficient command of the Dutch language.
<b>Follow up</b>	6 months after EOT [12]
<b>Intervention</b>	12-month DBT Participants (31) Assessed at EOT (23) Assessed at follow-up (20)
<b>Comparison</b>	12-month TAU Participants (33) Assessed at EOT (25) Assessed at follow-up (24)
<b>Outcomes</b>	<p><b>Self-harm</b>  <b>Self-harm frequency in the previous 3-month period (Lifetime Parasuicide Count - LPC), mean (SD):</b>  DBT: Baseline 1.28 (3.33), EOT 3.31 (13.15), follow-up 10.9 (34.28)  TAU: Baseline 2.65 (4.72), EOT 41.6 (78.76), follow-up 33.9 (99.39)  <i>Group difference Baseline-EOT: <math>F(1,51) = 11.85, p=0.00</math></i></p>

	<p>Group difference EOT-Follow-up: <math>F(1,51) = 2.00, p=0.16</math></p> <p><b>Parasuicide</b>  <b>Frequency of parasuicidal behavior in the previous 3-month period (BPD Severity Index, BPDSI), mean (SD):</b>  DBT: Baseline 0.36 (0.54), EOT 0.19 (0.38), follow-up 0.23 (0.45)  TAU: Baseline 0.40 (0.48), EOT 0.48 (0.63), follow-up 0.43 (0.73)  Group difference Baseline-EOT: <math>F(1,248) = 1.99, p=0.16</math>  Group difference EOT-Follow-up: <math>F(1,248) = 0.00, p=0.99</math></p>
<b>Comments</b>	
<b>Priebe 2012 [13], UK, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	
<b>Recruitment</b>	referrals to the DBT service in the London Borough of Newham. Referrals were accepted from different sources including primary, secondary and tertiary services.
<b>Population</b>	Individuals (87.5% women) with 5 days or more with self-harm in the year prior to treatment, age 16 years or over (32.28 +/-10.8), and a diagnosis of at least one personality disorder.
<b>Exclusion criteria</b>	Severe learning difficulties that would interfere with the individual's ability to participate in DBT treatment, and an inability to read or write English
<b>Follow up</b>	EOT
<b>Intervention</b>	Treatment: 12-month DBT Participants (40) Drop-outs (7) Analysed on primary outcome self harm (n = 38)
<b>Comparison</b>	Treatment: 12-month TAU Participants (40) Drop-outs (3) Analysed on primary outcome self harm (n = 36)
<b>Outcomes</b>	<p><b>Self harm, (number of days over the 12-month period)</b>  incidence rate ratio 0.91, (95% CI 0.89–0.92), <math>p&lt;0.001</math></p> <p><b>Zanarini Rating Scale of Borderline Personality Disorder (ZAN-BPD), mean (SD)</b>  DBT: baseline (n=40) 17.9 (6.8), 12 mo (n=33) 13.1 (6.9)  TAU: baseline (n=39) 18.4 (7.6), 12 mo (n=37) 15.9 (7.5)  <math>\beta = -2.4</math> (95% CI, -5.7 to 1.0), <math>p = 0.16</math></p>
<b>Comments</b>	Forty-eight per cent of patients completed DBT. They had a greater reduction in self-harm compared to dropouts, incidence rate ratio 0.78, (95% CI 0.76–0.80), $p<0.001$ )
<b>Linehan 2006 [14], USA, RCT</b>	
<b>Risk of bias</b>	Low
<b>Setting</b>	University outpatient clinic and community practice.
<b>Recruitment</b>	
<b>Population</b>	Women between the ages of 18 and 45 years (mean 29.3 ± 7.5) who met criteria for BPD and for current and past suicidal behavior as defined by at least 2 suicide attempts or self-injuries in the past 5 years, with at least 1 in the past 8 weeks
<b>Exclusion criteria</b>	schizophrenia, schizoaffective disorder, bipolar disorder, psychotic disorder not otherwise specified, or mental retardation; a seizure disorder requiring medication; a mandate to treatment; or the need for primary treatment for another debilitating condition.
<b>Follow up</b>	1 year
<b>Intervention</b>	Treatment: 1 year dialectical behavior therapy (DBT) Participants (52) Drop-outs (10) Analyzed at EOT (50) Analyzed at follow-up (46)
<b>Comparison</b>	Treatment: TAU (community treatment by experts, CTBE)

	<p>Participants (49) Drop-outs (21) Analyzed at EOT (39) Analyzed at follow-up (35)</p>
<b>Outcomes</b>	<p><b>Participants with suicide attempts</b> DBT 23.1% TAU 46% Chi squared =5.98, p=0.01 hazard ratio, 2.66, p=0.005 NNT 4.24 (95% CI, 2.40-18.07)</p> <p><b>Nonambivalent suicide attempts</b> DBT 5.8% TAU 13.3% p=0.18 NNT 13.3 (95% CI, 5.28-25.41)</p> <p><b>Suicide ideation, mean (SD)</b> DBT: baseline 51.7 (20.3), 12 mo, 29.8 (24.5), follow up 24.1 (19.8) TAU: baseline 59.9 (21.6), 12 mo 32.8 (26.3), follow up 31.92 (26.8) F=0.2 p=0.31</p> <p><b>Hamilton Rating Scale for Depression, mean (SD)</b> DBT: baseline 20.2 (5.9), 12 mo 14.0 (7.3), follow up 12.6 (6.8) TAU: baseline 21.7 ± 7.3, 12 mo 17.0 ± 8.2, follow up 14.4 ± 9.1 F=0.0 p= 0 .43</p>
<b>Comments</b>	
<b>Linehan 1993 [15], USA, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	
<b>Recruitment</b>	Clinically referred
<b>Population</b>	Women between 18-45 years with BPD defined by Gundersons diagnostic interview for BPD and D- III-R criteria and a history of parasuicidal behavior
<b>Exclusion criteria</b>	Schizophrenia, bipolar disorder, substance dependence, mental retardation
<b>Follow up</b>	1 year naturalistic follow up to Linehan 1991 #31 (originally N=47, in this study 41 remains)
<b>Intervention</b>	Treatment: DBT Participants (20)
<b>Comparison</b>	Treatment: TAU Participants (21)
<b>Outcomes</b>	<p><b>Parasuicide episodes, 18 mo /24 mo, (n), mean (SD)</b> DBT: n=19, 0.10 (0.32) / n=18, 0.72 (1.56) TAU: n=20, 2.10 (2.69) / n=18, 1.06 (1.55)</p> <p><b>Medically treated episodes 18 mo/24 mo (n), mean (SD)</b> DBT: n=19, 0.05 (0.23) / n=18, 0.11 (0.11) TAU: n=20, 0.75 (1.45) / n=18, 0.56 (0.24)</p> <p><b>Emotion regulation</b> <b>State-Trait Anger Scale (STAS-T) 18 mo/24 mo (n), mean (SD)</b> DBT: n=8, 30.97 (7.75) / n=8, 32.99 (7.48) TAU: n=7 37.46 (5.35) / n=11, 38.19 (9.08)</p> <p><b>Psychosocial functioning</b> <b>Global assessment scale (GAS) 18 mo/24 mo (n), mean (SD)</b> DBT: n=7, 48.18 (10.78) / n=9, 57.41 (16.82) TAU: n=7, 32.14 (8.28) / n=6, 36.05 (3.86)</p>

	<b>Social adjustment (SAS-I) 18 mo/24 mo (n), mean (SD)</b> DBT: n=7, 3.65 (0.96) / n=7, 3.23 (0.73) TAU: n=7, 3.97 (0.64) / n=7, 4.23 (0.36)
<b>Comments</b>	A naturalistic follow up to Linehan 1991 [7]
<b>Pistorello 2012 [16], USA, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	
<b>Recruitment</b>	College Counseling Centers
<b>Population</b>	Adults (81.0% women) between the ages of 18 and 25 (mean 20.86, SD 1.92), reported suicidal ideation at baseline as evidenced by a score of 1 or higher on Question 9 of the Beck Depression Inventory (BDI-II), endorsed at least one act of lifetime NSSI and/or suicide attempt as measured by the Suicide Attempt-Self Injury Interview (SASII), 2006), and met three or more criteria on the BPD section of the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II, BPD).
<b>Exclusion criteria</b>	Psychosis, need for inpatient care (as judged by assessor), or prior DBT treatment, and had to refrain from taking part in other psychotherapy during the treatment portion of the study.
<b>Follow up</b>	Follow up at 18 mo (6 months after EOT)
<b>Intervention</b>	Treatment: 7–12-month DBT Participants (31) Drop-outs (n) Analyzed at EOT (31) Lost to follow up (8) Analyzed at follow-up (23)
<b>Comparison</b>	Treatment: 7–12-month Optimized Treatment as Usual (O-TAU) Participants (32) Drop-outs (n) Analyzed at EOT (32) Lost to follow up (6) Analyzed at follow-up (25)
<b>Outcomes</b>	<p><b>Suicidality, Suicidal Behaviors Questionnaire (SBQ-23), mean (SD)</b> DBT: baseline 31.42 (14.64), 3 mo 25.36 (19.18), 6 mo 23.36 (18.45), 9 mo 17.25 (14.84), 12 mo 13.64 (12.20), follow up 10.67 (10.34) O-TAU: baseline 32.88 (18.32), 3 mo 27.55 (18.83), 6 mo 23.84 (17.74), 9 mo 27.42 (22.39), 12 mo 24.92 (20.19), follow up 23.89 (22.83) EOT: <math>t(57) = 2.02</math>, <math>p = 0.049</math>, <math>d = 0.53</math> (0.02–1.03) Follow up: <math>t(57) = 2.36</math>, <math>p = 0.022</math>, <math>d = 0.63</math> (0.12–1.13)</p> <p><b>Suicide Attempts, Suicide Attempt Self-Injury Interview (SASII)</b> DBT: baseline 19.4%, 3 mo 11.5%, 6 mo 4.5%, 9 mo 0%, 12 mo 0%, follow up 4.3% O-TAU: baseline 6.3%, 3 mo 3.2%, 6 mo 4.0%, 9 mo 0%, 12 mo 0%, follow up 7.1%</p> <p><b>Suicide Attempts, Suicidal Behaviors Questionnaire (SBQ)</b> DBT: baseline 22.6%, 3 mo 8.0%, 6 mo 4.5%, 9 mo 0%, 12 mo 0%, follow up 4.3% O-TAU: baseline 12.5%, 3 mo 6.5%, 6 mo 4.0%, 9 mo 0%, 12 mo 8.3%, follow up 0%</p> <p><b>Non-Suicidal Self-Injury, (SASII)</b> DBT: baseline 66.7%, 3 mo 42.3%, 6 mo 22.7%, 9 mo 5.3%, 12 mo 8.3%, follow up 13.0% O-TAU: baseline 80.6%, 3 mo 29.0%, 6 mo 24.0%, 9 mo 24.0%, 12 mo 15.4%, follow up 7.1%</p> <p><b>Mean count DBT (1.50 ± 1.12) vs O-TAU (5.23 ± 8.47); <math>t(57) = -2.11</math>, <math>p = 0.04</math></b></p>

	<p><b>Non-Suicidal Self-Injury, (SBQ)</b>  DBT: baseline 60.0%, 3 mo 52.0%, 6 mo 18.2%, 9 mo 12.5%, 12 mo 13.6%, follow up 17.4%  O-TAU: baseline 76.7%, 3 mo 35.5%, 6 mo 32.0%, 9 mo 25.0%, 12 mo 12.5%, follow up 19.2%</p> <p>DBT vs O-TAU <math>t(56) = -3.20, p = 0.002</math></p> <p><b>BPD Criteria (SCID-BPD), mean (SD)</b>  DBT: baseline 5.42 (1.65), 12 mo 1.17 (1.40), follow up (18 mo) 1.27 (1.49)  O-TAU: baseline 4.63 (1.74), 12 mo 2.73 (1.93), follow up (18 mo) 2.27 (2.13)</p> <p><b>Psychosocial functioning</b>  <b>Social Adjustment, Social Adjustment Scale-Self-Report (SAS-SR Total Score), mean (SD)</b>  DBT: baseline 2.67 (0.43), 6 mo 2.27 (0.47), 12 mo 2.02 (0.50), follow up 1.80 (0.38)  O-TAU: baseline 2.67 (0.39), 6 mo 2.38 (0.66), 12 mo 2.25 (0.51), follow up 2.17 (0.55)</p> <p>Difference estimate = 0.019, se = .007, <math>t(107) = 2.62, p = .01, d = 0.69</math> (0.15–1.16)</p> <p><b>Depression, Beck Depression Inventory (BDI-II), mean (SD)</b>  DBT: baseline 34.74 (8.67), 3 mo 18.95 (12.44), 6 mo 18.90 (9.19), 9 mo 13.06 (10.29), 12 mo 8.86 (8.52), follow up 7.61 (7.83)  O-TAU: baseline 30.59 (11.38), 3 mo 20.33 (12.31), 6 mo 20.68 (15.59), 9 mo 21.71 (16.89), 12 mo 16.67 (12.87), follow up 15.42 (14.61)  <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i>  <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p>
<b>Comments</b>	
<b>McMain 2017 [17], Canada, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	teaching hospital
<b>Recruitment</b>	
<b>Population</b>	Adults 18–60 years (mean: 29.67 SD 8.62), 78.6% women meeting the criteria for BPD as defined in the Diagnostic and Statistical Manual Version IV (DSM-IV), two suicidal and/ or NSSI episodes in the past 5 years, with one occurring within 10 weeks prior to enrolment and, able to understand written and spoken English.
<b>Exclusion criteria</b>	Meeting DSM-IV criteria for a psychotic disorder, bipolar I disorder or dementia, evidence of an organic brain syndrome or mental retardation based on clinical interview and participation in a DBT programme within the past year.
<b>Follow up</b>	12 weeks after EOT
<b>Intervention</b>	Treatment: 20-week DBT skills training Participants (42) Drop-outs of treatment (13) Analyzed at EOT (42) Lost to follow up (5) Analyzed at follow up (37)
<b>Comparison</b>	Treatment: Waitlist Participants (42) Analyzed at EOT (42) Lost to follow up (3) Analyzed at follow up (39)
<b>Outcomes</b>	<b>Borderline symptoms checklist (BSL), mean (SD)</b>

	<p>DBT skills: Baseline 56.35 (16.51), 10 wks 45.03 (13.74), 20 wks 33.72 (18.70), 32 wks 41.08 (22.41)  Waitlist: Baseline 58.75 (19.64), 10 wks 53.61 (17.70), 20 wks 48.48 (22.21), 32 wks 45.99 (26.27)</p> <p><b>No. Suicidal and self-injurious episodes, Deliberate Self-harm Inventory (DSHI), mean (SD)</b>  DBT skills: Baseline 9.68 (25.89), 10 wks 3.32 (7.97), 20 wks 1.14 (3.26), 32 wks 0.32 (1.27)</p> <p>Waitlist: Baseline 10.12 (29.73), 10 wks 5.12 (12.91), 20 wks 2.59 (6.90), 32 wks 1.14 (3.94)</p> <p><b>No. Suicidal and self-injurious episodes, Lifetime Suicide and Self-Injury Interview (LSASI), mean (SD)</b>  DBT skills: Baseline 9.06 (8.31), 10 wks 5.07 (4.26), 20 wks 2.84 (2.36), 32 wks 1.41 (1.35)  Waitlist: Baseline 8.33 (7.62), 10 wks 5.76 (4.80), 20 wks 3.96 (3.47), 32 wks 2.56 (2.40)</p> <p><b>Emotion regulation</b></p> <p><b>Anger (STAXI, Anger Expression Out Scale Score), mean (SD)</b>  DBT skills: Baseline 38.73 (9.88), 10 wks 34.23 (8.50), 20 wks 29.73 (9.27), 32 wks 30.29 (10.96)  Waitlist: Baseline 45.22 (9.53), 10 wks 43.20 (8.71), 20 wks 41.18 (10.68), 32 wks 40.43 (12.16)</p> <p><b>Difficulties in emotion regulation scale (DERS), mean (SD)</b>  DBT skills: Baseline 131.43 (17.84), 10 wks 118.99 (15.55), 20 wks 106.55 (20.22), 32 wks 110.63 (26.87)  Waitlist: Baseline 132.80 (16.79), 10 wks 129.75 (15.76), 20 wks 126.70 (18.76), 32 wks 128.06 (20.89)</p> <p><b>Psychosocial functioning</b></p> <p><b>Social adjustment scale–self-report (SAS-SR), mean (SD)</b>  DBT skills: Baseline 2.84 (0.46), 10 wks 2.67 (0.43), 20 wks 2.50 (0.56), 32 wks 2.60 (0.70)  Waitlist: Baseline 2.84 (0.53), 10 wks 2.92 (0.50), 20 wks 2.88 (0.59), 32 wks 2.87 (0.65)</p> <p><b>Distress Tolerance Scale (DTS), Mean (SD)</b>  DBT skills: Baseline 5.11 (2.49), 10 wks 6.44 (2.16), 20 wks 7.77 (2.93), 32 wks 7.81 (3.64)  Waitlist: Baseline 4.45 (2.34), 10 wks 4.95 (1.87), 20 wks 5.45 (2.49), 32 wks 5.28 (2.75)</p> <p><b>Depression</b></p> <p><b>Beck Depression Inventory-II (BDI), mean (SD)</b>  DBT skills: Baseline 32.68 (10.95), 10 wks 27.72 (9.59), 20 wks 22.76 (12.55), 32 wks 27.94 (16.08)  Waitlist: Baseline 36.70 (11.46), 10 wks 33.21 (11.02), 20 wks 29.73 (13.50), 32 wks 29.50 (15.71)  <i>Cutoff score 10, signifying an absence of clinically significant symptoms  Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p>
<b>Comments</b>	
<b>Mohamadizadeh 2017 [18], Iran, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	
<b>Recruitment</b>	All patients with BPD disorder who lived in the city of Qazvin in 2015.
<b>Population</b>	Adults with BPD. Mean age not stated. 100 % female.
<b>Exclusion criteria</b>	Previous suicide attempt or recurrent suicidal behaviour. Perturbations such as bipolar disorder, substance abuse and personality disorder

<b>Follow up</b>	
<b>Intervention</b>	16 sessions of DBT-ST Participants (12) Drop-outs (not stated)
<b>Comparison 1</b>	16 sessions of Schema Therapy (ST) Participants (12) Drop-outs (not stated)
<b>Comparison 2</b>	No intervention (NI) Participants (12) Drop-outs (not stated)
<b>Outcomes</b>	<b>Suicidal ideation</b> <b>Scale for Suicide Ideation of Mach (SSIM), mean scores (SD)</b> DBT-ST: Baseline 33.41 (1.5), EOT 15.25 (1.65) ST: Baseline 31.83 (1.52), EOT 14.33 (1.55) NI: Baseline 31.58 (1.24), EOT 31 (0.96) <i>DBT-ST vs ST at EOT: <math>t= 1.396, p = 0.663</math></i>  <b>The Beck Depression Inventory-II (BDI-II), mean scores (SD):</b> DBT-ST: Baseline 55 (3.93), EOT 24.16 (2.7) ST: Baseline 57 (4.44), EOT 19.83 (1.53) NI: Baseline 54.91 (3.08), EOT 53.75 (2.13) <i>DBT-ST vs ST at EOT: <math>t= 3.034, p = 0.006</math></i> <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i> <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i>
<b>Linehan 2015 [19], USA, RCT</b>	
<b>Risk of bias</b>	Low
<b>Setting</b>	university-affiliated clinic and community settings
<b>Recruitment</b>	outreach to health care practitioners
<b>Population</b>	Women aged 18 to 60 years (mean 30.3 SD=8.9) with borderline personality disorder who had at least 2 suicide attempts and/or nonsuicidal self-injury (NSSI) acts in the last 5 years, an NSSI act or suicide attempt in the 8 weeks before screening, and a suicide attempt in the past year
<b>Exclusion criteria</b>	IQ score of less than 70, met criteria for current psychotic or bipolar disorders on the Structured Clinical Interview for DSM-IV, Axis I <sup>9</sup> , seizure disorder requiring medication; or required primary treatment for another life-threatening condition (eg, severe anorexia nervosa).
<b>Follow up</b>	1 year (follow up at 24 mo)
<b>Intervention</b>	Treatment: Standard DBT (includes skills training and individual therapy) 1 year Participants (33) Drop-outs (8) Included in analysis at EOT (33) Included in analysis at follow-up (27)
<b>Comparison</b>	1. Treatment: DBT individual therapy plus activities group (DBT-I) 1 year Participants (33) Drop-outs (16) Included in analysis at EOT (33) Included in analysis at follow-up (22)  2. Treatment: DBT skills training plus case management (DBT-ST) 1 year Participants (33) Drop-outs (13) Included in analysis at EOT (33) Included in analysis at follow-up (24)
<b>Outcomes</b>	<b>Suicide attempts, mean (SD)</b> Standard DBT: baseline 97% 3.6 (5.3), 12 mo 36% 3.4 (4.6), 24 mo 7% 2.0 (1.4) DBT-I: baseline 97% 6.4 (14.2), 12 mo 44% 2.9 (3.0), 24 mo 22% 3.6 (3.2) DBT-ST: baseline 100% 2.8 (2.3), 12 mo 26% 2.6 (2.9), 24 mo 17% 1.5 (0.6)

	<p><b>NSSI episodes, mean (SD)</b> Standard DBT: baseline 81.8% 19.0 (25.4), 12 mo 58.1% 10.2 (16.3), 24 mo 44.8% 7.9 (8.5) DBT-I: baseline 90.1% 23.5 (35.3), 12 mo 63.0% 20.6 (33.1), 24 mo 39.1% 16.0 (32.6) DBT-ST: baseline 81.8% 24.7 (33.9), 12 mo 55.6% 9.9 (19.7), 24 mo 45.8% 9.4 (20.4)</p> <p><b>Suicide ideation, The Suicidal Behaviors Questionnaire, mean (SD)</b> Standard DBT: baseline 50.9 (20.3), 12 mo 32.0 (21.6) 24 mo 28.9 (16.6) DBT-I: baseline 58.4 (17.9), 12 mo 30.3 (27.5), 24 mo 25.5 (20.8) DBT-ST: baseline 51.8 (17.3), 12 mo 27.5 (19.1), 24 mo 21.2 (19.2)</p> <p><b>Depression, Hamilton Rating Scale for Depression, mean (SD)</b> Standard DBT: baseline 22.1 (7.3), 12 mo 12.3 (8.0), 24 mo 15.2 (8.6) DBT-I: baseline 23.8 (6.4), 12 mo 18.2 (7.9), 24 mo 13.9 (9.6) DBT-ST: baseline 23.5 (5.4), 12 mo 10.4 (6.4), 24 mo 11.9 (8.8)</p> <p><b>Anxiety, Hamilton Rating Scale for Anxiety, mean (SD)</b> Standard DBT: baseline 24.6 (11.7), 12 mo 17.2 (10.2), 24 mo 18.3 (11.7) DBT-I: baseline 25.3 (10.6), 12 mo 24.3 (11.6), 24 mo 19.1 (12.2) DBT-ST: baseline 20.6 (9.2), 12 mo 14.2 (10.2), 24 mo 14.3 (11.7)</p>
<b>Comments</b>	
<b>Lin 2019 [20], Taiwan, RCT</b>	
<b>Risk of bias</b>	Low
<b>Setting</b>	
<b>Recruitment</b>	College students recruited from two university counseling centers
<b>Population</b>	Adults 88% women, mean age 24.4 (SD 0.71), meeting criteria for BPD as well as having experienced at least one suicide attempt in the past 6 months.
<b>Exclusion criteria</b>	Diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, psychotic disorder; a current severe depression and suicide risk indicating the need for inpatient care and crisis intervention, experiencing current neurological signs and substance abuse during the last 6 months
<b>Follow up</b>	Follow up 24 wks after EOT
<b>Intervention</b>	Treatment: 8-week Dialectical Behavior Therapy Skills Training Group (DBTSTG) Participants (42) Drop-outs (6) Included in analysis at EOT (42) Included in analysis at follow-up (42)
<b>Comparison</b>	Treatment: 8-week Cognitive Therapy Group (CTG) Participants (40) Drop-outs (8) Included in analysis at EOT (40) Included in analysis at follow-up (39)
<b>Outcomes</b>	<p><b>Suicide attempts</b> <b>Suicide reattempt rates</b> DBTSTG: baseline 100%, 4 wks 14.28%, 8 week (posttest) 11.9%, 20 wks 0%, 32 wks 0% CTG: baseline 100%, 4 wks 12.5%, 8 week (posttest) 15%, 20 wks 0%, 32 wks 0%</p> <p><b>Borderline symptom severity</b> <b>Borderline Personality Disorder Features Scale (BPDFS), mean (SD)</b> DBTSTG: baseline 8.35 (0.53), 4 wks 7.00 (1.08), 8 weeks (posttest) 6.00 (0.98), 20 wks 5.27 (0.74), 32 wks 4.91 (0.60)</p>



	<p>CTG: baseline 8.25 (0.70), 4 wks 6.83 (1.09), 8 weeks (posttest) 5.74(.81), 20 wks 5.40 (0.87), 32 wks 5.87 (0.18)</p> <p><b>Suicide ideation</b>  <b>Adult Suicidal Ideation Questionnaire-Shortened Version (ASIQ-S), mean (SD)</b>  DBTSTG: baseline 65.23 (2.60), 4 wks 55.80 (6.51), 8 wks (posttest) 49 (6.50), 20 wks 45.05 (5.75), 32 wks 40.27 (4.91)  CTG: baseline 64.47 (3.11), 4 wks 55.01 (6.21), 8 wks (posttest) 48.54 (7.01), 20 wks 44.53 (6.02), 32 wks 42.96 (5.23)</p> <p><b>Depression</b>  <b>Ko's Depression Inventory, mean (SD)</b>  DBTSTG: baseline 35.57 (16.65), 4 wks 18.75 (8.25), 8 weeks (posttest) 17.08 (6.02) 20 wks 21.29 (10.44), 32 wks 21.73 (8.38)  CTG: baseline 34.80 (16.05), 4 wks 18.31 (9.15), 8 wks (posttest) 19.20 (8.21), 20 wks 23.05 (11.93), 32 wks 23.33 (7.65)</p>
<b>Comments</b>	
<b>Turner 2000 [21], USA, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	Outpatient
<b>Recruitment</b>	Referrals from local hospital emergency services for suicide attempts to community mental health outpatient clinic for follow-up services
<b>Population</b>	Patients with BPD. Mean age 22, range 18 to 27 years. 79 % female.
<b>Exclusion criteria</b>	Schizophrenia, schizoaffective disorder, bipolar disorder, organic mental disorders, mental retardation
<b>Follow up</b>	12 month (EOT)
<b>Intervention</b>	12-month Dialectical behavior therapy - oriented treatment (DBT) Participants (12) Drop-outs from treatment (3) Available at EOT assessment (12)
<b>Comparison</b>	12-month Client-centered therapy (CCT) Participants (12) Drop-outs from treatment (6) Available at EOT assessment (12)
<b>Outcomes</b>	<p><b>Parasuicide</b>  <b>Mean (SD) number of parasuicide episodes in the last 6 months:</b>  DBT: Baseline 14.08 (3.73), EOT 0.75 (1.23)  CCT: Baseline 13.58 (3.34), EOT 5.58 (5.28)  <i>0 episodes signified an absence of clinically significant symptoms</i>  <b>Target Behavior Ratings – Parasuicidal behavior, mean rating (SD):</b>  DBT: Baseline 7.17 (0.83), EOT 1.5 (1.98)  CCT: Baseline 7.25 (0.75), EOT 4.25 (2.18)  <i>Cutoff score 2, signifying an absence of clinically significant symptoms</i></p> <p><b>Suicidal ideation</b>  <b>Beck Scale for Suicide Ideation (BSI), mean score (SD):</b>  DBT: Baseline 24.08 (3.73), EOT 3.83 (8.03)  CCT: Baseline 23.53 (3.34), EOT 11.58 (9.21)  <i>Cutoff score 3, signifying an absence of clinically significant symptoms</i></p> <p><b>Emotion regulation</b>  <b>Target Behavior Ratings – Impulsiveness, mean rating (SD):</b>  DBT: Baseline 7.42 (0.51), EOT 4.58 (1.62)  CCT: Baseline 7.58 (0.51), EOT 6.08 (1.08)  <i>Cutoff score 2, signifying an absence of clinically significant symptoms</i>  <b>Target Behavior Ratings – Anger, mean rating (SD):</b>  DBT: Baseline 7.33 (0.65), EOT 4.67 (1.30)  CCT: Baseline 7.08 (0.90), EOT 5.67 (1.15)  <i>Cutoff score 2, signifying an absence of clinically significant symptoms</i></p>

	<p><b>Depression</b></p> <p><b>Beck Depression Inventory (BDI), mean score (SD):</b>  DBT: Baseline 27.58 (5.30), EOT 14.92 (8.26)  CCT: Baseline 27.75 (6.11), EOT 24.08 (5.55)  <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i>  <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p> <p><b>Hamilton Rating Scale for Depression (HRSD), mean score (SD):</b>  DBT: Baseline 20.75 (4.33), EOT 7.50 (5.96)  CCT: Baseline 17.42 (4.46), EOT 12.58 (3.90)  <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i>  <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p> <p><b>Anxiety</b></p> <p><b>Beck Anxiety Inventory, mean score (SD):</b>  DBT: Baseline 19.25 (3.55), EOT 10.17 (6.53)  CCT: Baseline 20.42 (3.45), EOT 14.83 (6.34)  <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i></p>
<b>Comments</b>	
<b>Dixon-Gordon 2015 [22], USA/Canada, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	
<b>Recruitment</b>	Local treatment facilities and the broader community using flyers and online advertisements
<b>Population</b>	Adult females with BPD, mean (SD) age 34 (12) years.
<b>Exclusion criteria</b>	Current psychotic disorder diagnosis
<b>Follow up</b>	14 weeks (8 weeks after EOT)
<b>Intervention 1</b>	6 weeks <b>DBT interpersonal effectiveness skills training (DBT-IE group)</b> Participants (6) Drop-outs (1) Analyzed at EOT (6) Analyzed at follow-up (5)
<b>Intervention 2</b>	6 weeks <b>DBT emotion regulation skills training (DBT-ER group)</b> Participants (7) Drop-outs (0) Analyzed at EOT (7) Analyzed at follow-up (7)
<b>Comparison</b>	6 weeks Interpersonal and Psycho-Education (IPE-group) Participants (6) Drop-outs (1) Analyzed at EOT (6) Analyzed at follow-up (5)
<b>Outcomes</b>	<p><b>Borderline symptom severity</b></p> <p><b>Personality Assessment Inventory - Borderline scale (PAI-BOR ), mean scores (SD):</b>  DBT-IE: Baseline 51.17 (11.72), EOT 37.20 (13.29), follow up 41.80 (19.92)  DBT-ER: Baseline 49.29 (11.35), EOT 39.86 (11.28), follow up 34.33 (10.91)  IPE: Baseline 43.00 (9.87), EOT 37.40 (15.68), follow up 30.50 (17.02)  <i>Reliable change 11.4 points.</i></p> <p><b>Self-harm</b></p> <p><b>Deliberate Self-Harm Inventory (DSHI) frequency in the past month, mean scores (SD):</b>  DBT-IE: Baseline 1.50 (2.35), EOT 0.25 (0.50), follow up 0.80 (1.10)  DBT-ER: Baseline 8.14 (13.31), EOT 6.43 (10.98), follow up 3.17 (4.75)  IPE: Baseline 0.83 (1.60), EOT 0.00 (0.00), follow up 5.00 (10.00)</p>

	<p><b>Emotion regulation</b></p> <p><b>Difficulties in Emotion Regulation Scale (DERS), mean scores (SD):</b>  DBT-IE: Baseline 109.50 (15.86), EOT 106.40 (22.01), follow up 107.60 (16.15)  DBT-ER: Baseline 123.86 (28.72), EOT 106.00 (31.13), follow up 95.33 (27.58)  IPE: Baseline 108.50 (14.69), EOT 97.00 (17.28), follow up 88.00 (25.92)</p> <p><b>State Trait Anger Expression Inventory 2 Trait Anger scale (STAXI-T), mean scores (SD):</b>  DBT-IE: Baseline 27.50 (3.27), EOT 23.80 (6.80), follow up 27.00 (5.34)  DBT-ER: Baseline 24.14 (6.77), EOT 21.57 (3.41), follow up 19.50 (4.93)  IPE: Baseline 23.33 (4.03), EOT 23.00 (2.65), follow up 19.75 (6.13)</p> <p><b>Psychosocial functioning</b></p> <p><b>Social Problem Solving Inventory-Revised (SPSI-R), mean scores (SD):</b>  DBT-IE: Baseline 75.83 (20.27), EOT 77.75 (17.02), follow up 83.60 (17.81)  DBT-ER: Baseline 69.00 (11.09), EOT 80.86 (16.38), follow up 84.00 (13.52)  IPE: Baseline 82.67 (16.87), EOT 88.60 (6.84), follow up 92.00 (13.34)</p> <p><b>Distress Tolerance Scale (DTS), mean scores (SD):</b>  DBT-IE: Baseline 36.00 (7.90), EOT 39.90 (10.68), follow up 42.00 (7.52)  DBT-ER: Baseline 35.14 (14.81), EOT 54.50 (15.49), follow up 46.83 (13.26)  IPE: Baseline 43.83 (4.21), EOT 56.60 (14.48), follow up 55.00 (13.93)</p> <p><b>Depression</b></p> <p><b>Beck Depression Inventory II (BDI-II), mean scores (SD):</b>  DBT-IE: Baseline 32.17 (12.73), EOT 20.40 (14.01), follow up 21.20 (14.52)  DBT-ER: Baseline 27.71 (15.09), EOT 22.01 (19.57), follow up 14.05 (17.42)  IPE: Baseline 26.50 (10.21), EOT 19.25 (9.71), follow up 19.75 (11.70)  <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i>  <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p>
<b>Comments</b>	
<b>Hamid 2020 [23], Iran, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	
<b>Recruitment</b>	Referrals to public and private psychological clinics
<b>Population</b>	Male patients with borderline personality disorder, age 17 to 45 years old, mean age 28 years.
<b>Exclusion criteria</b>	Acute physical and psychological disorder, psychotic disorder, mood disorder, substance abuse, and psychiatric patients
<b>Follow up</b>	6 months after EOT
<b>Intervention 1</b>	12 sessions of DBT-ST Total of 45 participants in the study. Neither information on number of participants in each group, nor information about drop-outs.
<b>Intervention 2</b>	12 sessions of Schema Therapy (ST) Total of 45 participants in the study. Neither information on number of participants in each group, nor information about drop-outs.
<b>Comparison</b>	3 sessions of no intervention (Control) Total of 45 participants in the study. Neither information on number of participants in each group, nor information about drop-outs.
<b>Outcomes</b>	<p><b>Psychosocial functioning</b></p> <p><b>Disrupted communication</b>  DBT-ST: Baseline 22.29 (2.36), EOT 5.28 (1.13), follow-up 5.60 (1.24)  ST: Baseline 22.64 (1.35), EOT 8.09 (0.48), follow-up 8.06 (0.90)  Control: Baseline EOT 21.29 (1.28) follow-up 21.32 (1.64)</p>

	<p><i>Mean difference (SE) Baseline – EOT:</i>  DBT-ST vs ST: 2.46 (0.73), <math>p = 0.007</math>  DBT-ST vs Control: 17.0 (0.73), <math>p &lt; 0.001</math>  <i>Mean difference (SE) Baseline – Follow-up:</i>  DBT-ST vs ST: 2.11 (0.74), <math>p = 0.022</math>  DBT-ST vs Control: 16.7 (0.74), <math>p &lt; 0.001</math></p> <p><b>Emotional regulation</b>  <b>Emotional deregulation</b>  Baseline score all participants, mean (SD): 16.81 (1.41)  DBT-ST: EOT 6.04 (0.47), follow-up 6.0 (0.50)  ST: EOT 4.59 (0.68), follow-up 4.45 (0.74)  Control: EOT 14.48 (1.43), follow-up 15.34 (0.99)</p> <p><i>Mean difference (SE) Baseline – EOT:</i>  DBT-ST vs ST: -0.73 (0.57), <math>p = 0.419</math>  DBT-ST vs Control: 10.1 (0.57), <math>p &lt; 0.001</math>  <i>Mean difference (SE) Baseline – Follow-up:</i>  DBT-ST vs ST: -0.85 (0.46), <math>p = 0.179</math>  DBT-ST vs Control: 11.0 (0.46), <math>p &lt; 0.001</math></p>
<b>Steuwe 2021 [24], Germany, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	Residential setting
<b>Recruitment</b>	Consecutively screening
<b>Population</b>	Females 18–65 years with BPD and PTSD (score of at least 50 points on the Clinician-Administered PTSD Scale). Mean (SD) age 31 (8) years.
<b>Exclusion criteria</b>	Clinically evaluated doubts about the capacity to consent and to contract, pregnancy, breastfeeding, lifetime diagnosis of schizophrenia, body mass index $< 16.5$ , current substance use, a suicide attempt 2 months before admission, ongoing victimizing perpetrator contact, undergoing a DBT- or exposure-based therapy within the last 12 months.
<b>Follow up</b>	12 months after EOT
<b>Intervention</b>	10-week Narrative Exposure Therapy (NET) Participants (30) Drop-outs from treatment (5) Assessed at EOT (26) Assessed at follow-up (26)
<b>Comparison</b>	10-week DBT based treatment (DBT-bt) Participants (30) Drop-outs from treatment (14) Assessed at EOT (18) Assessed at follow-up (22)
<b>Outcomes</b>	<p><b>Borderline symptom severity</b>  <b>BPD Criteria (DSM-IV, SCID-II), mean score (SD):</b>  NET: Baseline 7.03 (1.27), EOT no data, follow-up 4.80 (2.67)  DBT-bt: Baseline 6.90 (1.35), EOT no data, follow-up 4.41 (2.13)  <math>F(1,40) = 0.32</math>, ns</p> <p><b>Depression</b>  <b>Beck Depression Inventory (BDI), mean score (SD):</b>  NET: Baseline 36.65 (9.00), EOT 25.31 (12.47), follow-up 25.47 (15.06)  DBT-b: Baseline 43.19 (6.15), EOT 27.70 (12.95), follow-up 30.17 (12.75)  <math>F(2,78) = 0.80</math>, ns  <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i>  <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p>

Comments	
<b>Soler 2009 [25], Spain, RCT</b>	
Risk of bias	Some concerns
Setting	Outpatient
Recruitment	From an outpatient borderline personality disorder unit
Population	Adults (age 18-45) with BPD and Clinical Global Impression of Severity (CGI-S) score of 4 or higher. Mean (SD) age 29 (6) years. 81 % female.
Exclusion criteria	Schizophrenia, drug-induced psychosis, organic brain syndrome, alcohol or other psychoactive substance dependence, bipolar disorder, mental retardation, major depressive episode in course
Follow up	3-month (EOT)
Intervention	3-month DBT skills training (DBT-ST) Participants (29) Drop-outs from treatment (10) Analyzed at EOT (29)
Comparison	3-month Standard group therapy (SGT) Participants (30) Drop-outs from treatment (19) Analyzed at EOT (30)
Outcomes	<p><b>Self-harm</b> <i>No information about measurement. No data except from n.s. difference between groups.</i></p> <p><b>Suicide attempts</b> <i>No information about measurement. No data except from n.s. difference between groups.</i></p> <p><b>Borderline symptom severity</b> <b>Clinical Global Impression-Borderline Personality Disorder (CGI-BPD), mean total score (SD):</b> DBT-ST: Baseline 4.78 (0.80), EOT 3.50 (1.20) SGT: Baseline 4.89 (0.33), EOT 4.44 (0.52) p=0.218</p> <p><b>Depression</b> <b>Hamilton Rating Scale-Depression (HRSD-17), mean score (SD):</b> DBT-ST: Baseline 17.05 (3.83), EOT 11.11 (3.99) SGT: Baseline 20.67 (3.67), EOT 16.00 (5.78) p=0.001</p> <p><b>Anxiety</b> <b>Hamilton Rating Scale-Anxiety (HRSA), mean score (SD):</b> DBT-ST: Baseline 19.63 (5.20), EOT 13.00 (5.46) SGT: Baseline 22.67 (3.57), EOT 16.56 (5.00) p=0.034</p> <p>p=0.787</p>
Comments	
<b>Walton 2020 [26], Australia, RCT</b>	
Risk of bias	Low
Setting	Specialist outpatient service for BPD
Recruitment	Referrals from community mental health teams, general practitioners or private therapists
Population	Adults (18-65 years) with BPD with three or more suicide attempts and/or NSSI episodes in the last 12 months. Mean (SD) age 27 (8) years. 77 % female.
Exclusion criteria	Disabling organic conditions, current acute psychotic illness, antisocial behaviour that posed a

	significant threat to staff and fellow patients, developmental disability, living more than 1 hour's drive from the treatment centre, inability to speak or read English, current substance dependence other than nicotine, prior treatment with DBT or CM.
<b>Follow up</b>	14 months (EOT)
<b>Intervention</b>	14-month DBT Participants (83) Drop-outs during treatment (28) Analysed at EOT (81)
<b>Comparison</b>	14-month Conversational model (CM) Participants (83) Drop-outs during treatment (20) Analysed at EOT (81)
<b>Outcomes</b>	<p><b>Suicide attempts</b>  <b>Mean (SD) number of suicide attempts in the last 7 months:</b>  DBT: Baseline 19.96 (51.4), EOT 1.22 (2.75)  CM: Baseline 9.71 (26.69), EOT 2.42 (13.94)  Wald's <math>\chi^2 = 1.48</math>, <math>p = 0.223</math></p> <p><b>Self-harm</b>  <b>Mean (SD) number of NSSI episodes in the last 7 months:</b>  DBT: Baseline 63.00 (92.17), EOT 10.04 (37.08)  CM: Baseline 77.51 (113.53), EOT 14.19 (27.90)  Wald's <math>\chi^2 = 0.05</math>, <math>p = 0.828</math></p> <p><b>Borderline symptom severity</b>  <b>Borderline Personality Disorder Severity Index (BPDSI-IV)</b>  DBT: Baseline 40.13 (11.45), EOT 19.00 (9.83)  CM: Baseline 36.80 (12.50), EOT 19.49 (11.10)  Wald's <math>\chi^2 = 0.58</math>, <math>p = 0.445</math></p> <p><b>Depression</b>  <b>Beck Depression Inventory (BDI-II), mean score (SD):</b>  DBT: Baseline 38.63 (10.31), EOT 15.94 (14.52)  CM: Baseline 35.64 (10.68), EOT 22.13 (17.78)  Wald's <math>\chi^2 = 8.00</math>, <math>p = 0.005</math>  <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i>  <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p> <p><b>Difficulties with relationships</b>  <b>Inventory of Interpersonal Problems (IIP), mean score (SD):</b>  DBT: Baseline 128.43 (29.25), EOT 94.25 (44.57)  CM: Baseline 120.38 (31.81), EOT 99.08 (39.89)  Wald's <math>\chi^2 = 2.30</math>, <math>p = 0.130</math></p> <p><b>Emotion regulation</b>  <b>Difficulties in Emotion Regulation Scale (DERS), mean scores (SD):</b>  DBT: Baseline 134.34 (21.57), EOT 87.08 (28.0)  CM: Baseline 133.53 (21.10), EOT 105.16 (33.90)  Wald's <math>\chi^2 = 7.04</math>, <math>p = 0.008</math></p>
<b>Comments</b>	
<b>Adolescents with BPD receiving MBT</b>	
<b>Beck 2020 [27] and Jorgensen 2021 [28], Denmark, RCT</b>	
<b>Risk of bias (overall)</b>	Low in both studies
<b>Setting</b>	Four child and adolescent psychiatric outpatient clinics
<b>Recruitment</b>	
<b>Population</b>	Adolescents 14-17 years with $\geq 4$ DSM-5 BPD criteria. 99 % were females and 96 % had BPD. Mean age at baseline 16 years.

<b>Exclusion criteria</b>	Pervasive developmental disorder, learning disability (IQ < 75), anorexia, current psychosis, schizophrenia, schizotypal personality disorder, antisocial personality disorder, any other mental disorder other than BPD considered the primary diagnosis, current substance dependence, and current psychiatric inpatient treatment.
<b>Follow up</b>	12 months [28]
<b>Intervention</b>	12-month group based MBT (MBT-G) Participants (56) Drop-out of treatment 32 (of which 17 gave available data for primary outcome at EOT) Provided data at 12 month follow-up for primary outcome (46)
<b>Comparison</b>	12-month TAU Participants (56) Drop-out of treatment 14 (of which 3 gave available data for primary outcome at EOT) Provided data at 12 month follow-up for primary outcome (51)
<b>Outcomes</b>	<p><b><i>Borderline symptom severity</i></b></p> <p><b>Borderline Personality Features Scale for Children (BPFS-C), mean score (SD):</b> MBT-G: Baseline 80.7 (11.0), EOT 71.3 (15.0), follow-up 68.6 (15.0) TAU: Baseline 79.0 (12.9), EOT 71.3 (15.2), follow-up 67.7 (14.8) (Minimal clinical relevant difference 12 units [Beck 2016. Trials, 17, 314])</p> <p><b>Borderline Personality Features Scale for Parents (BPFS-P), mean scores (SD):</b> MBT-G: Baseline 78.3 (12.7), EOT 69.1 (12.4), follow-up 66.9 (14.5) TAU: Baseline 77.9 (14.8), EOT 68.7 (16.8), follow-up 62.0 (16.7)</p> <p><b>Zanarini Rating Scale for Borderline Personality Disorder (ZAN-BPD), total mean scores (SD):</b> MBT-G: Baseline 12.8 (7.5), EOT 8.8 (6.5), follow-up 6.5 (4.4) TAU: Baseline 13.3 (7.8), EOT 8.0 (7.3), follow-up 6.9 (5.9)</p> <p><b><i>Self-harm</i></b></p> <p><b>Risk-Taking and Self-Harm Inventory for adolescents (RTSHIA), men scores (SD):</b> MBT-G: Baseline 40.3 (10.8), EOT 40.8 (11.2), follow-up 40.4 (9.7) TAU: Baseline 40.2 (10.6), EOT 39.0 (13.4), follow-up 39.7 (13.3)</p> <p><b><i>Difficulties with relationships</i></b></p> <p><b>BPD Relationships symptoms (ZAN-BPD), mean scores (SD):</b> MBT-G: Baseline 2.3 (2.1), EOT 1.7 (1.5), follow-up 1.0 (1.4) TAU: Baseline 2.7 (2.0), EOT 1.3 (1.9), follow-up 1.2 (1.5)</p> <p><b><i>Depression</i></b></p> <p><b>Beck's Depression Inventory for Youth (BDI-Y), mean scores (SD):</b> MBT-G: Baseline 75.9 (9.3), EOT 23.3 (11.2), follow-up 21.4 (9.7) TAU: Baseline 76.2 (11.6), EOT 22.2 (12.3), follow-up 20.1 (11.4) <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i> <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p> <p><b><i>Psychosocial functioning</i></b></p> <p><b>Social functioning - Children's Global Assessment Scale (CGAS), mean scores (SD):</b> MBT-G: Baseline 35.7 (9.1), EOT 46.1 (13.4), follow-up 50.1 (13.6) TAU: Baseline 35.2 (11.1), EOT 46.7 (12.6), follow-up 50.4 (11.9)</p>
<b>Comments</b>	
<b>Rossouw 2012 [29], UK, RCT</b>	
<b>Risk of bias</b>	Low

<b>Setting</b>	
<b>Recruitment</b>	consecutive case individuals presenting with self-harm to community mental health services or acute hospital emergency rooms.
<b>Population</b>	Adolescents 12 through 17 years of age mean age 14.7 years, (85% female) who presented with at least one episode of confirmed self-harm within the past month and was confirmed as intentional consecutively presenting to mental health services with self-harm and comorbid depression
<b>Exclusion criteria</b>	comorbid diagnosis of psychosis, severe learning disability (IQ < 65), pervasive developmental disorder, or eating disorder in the absence of self-harm
<b>Follow up</b>	
<b>Intervention</b>	Treatment: 12-month MBT-A Participants (40) Drop-outs (20) 40 included in analyses
<b>Comparison</b>	Treatment: 12-month TAU Participants (40) Drop-outs (23) 40 included in analyses
<b>Outcomes</b>	<p><b>Self-Harm, Risk-Taking and Self-Harm Inventory (RTSHI), mean (SD)</b>            MBT-A: baseline 3.12 (0.09), 3 mo 2.02 (0.19), 6 mo 1.98 (0.17), 9 mo 1.37 (0.20) 12 mo 1.33 (0.22)            TAU: baseline 3.08 (0.10), 3 mo 2.19 (0.18) 6 mo 2.21 (0.20) 9 mo 2.04 (0.21) 12 mo 2.01 (0.21)            Group differences at 12 mo, OR -0.74 (-1.32 to -0.15) <math>p &lt; 0.01</math></p> <p><b>Depression, Mood and Feelings Questionnaire (MFQ), mean (SD)</b>            MBT-A: baseline 17.46 (0.843), 3 mo 12.11 (1.22), 6 mo 12.34 (1.08) 9 mo 7.76 (1.01)            12 mo 9.26 (1.27)            TAU: baseline 16.32 (0.74) 3 mo 12.89 (1.01) 6 mo 12.79 (1.15) 9 mo 11.66 (1.17) 12 mo 11.54 (1.14)            Group differences at 12 mo, OR -3.31 (-6.49 to -0.12) <math>p &lt; 0.05</math></p> <p><b>Childhood Interview for DSM-IV Borderline Personality Disorder (CI-BPD)</b>            MBT-A: baseline (n=40) 0.75 (0.07), 12 mo (n=29) 0.33 (0.09)            TAU: baseline (n=40) 0.70 (0.07), 12 mo (n=30) 0.58 (0.09)</p> <p><b>Borderline Personality Features Scale for Children (Mean BPF5-C)</b>            MBT-A: baseline (n=40) 3.33 (0.08), 12 mo (n=29) 2.79 (0.10)            TAU: baseline (n=40) 3.30 (0.08), 12 mo (n=30) 3.06 (0.12)</p>
<b>Comments</b>	
<b>Adults with BPD receiving MBT</b>	
<b>Carlyle 2020 [30], New Zealand, RCT</b>	
<b>Risk of bias (overall)</b>	Some concerns
<b>Setting</b>	Outpatient setting in a publicly funded MHS
<b>Recruitment</b>	Subjects were existing patients of the community mental health service, with a diagnosis of BPD, confirmed by the SCID-II
<b>Population</b>	Adults with BPD. 99% female. Mean age at baseline 32 years, SD 11 years
<b>Exclusion criteria</b>	Diagnoses of psychoses, primary substance dependence, insufficient proficiency in English, concurrent engagement in a structured psychological treatment for personality disorder.
<b>Follow up</b>	18 months (EOT)
<b>Intervention</b>	18 months of MBT Participants (38) Drop-outs (7) Analyzed at EOT (38)
<b>Comparison</b>	18 months of Enhanced Therapeutic Case Management (ETCM)



	Participants (34) Drop-outs (3) Analyzed at EOT (34)
<b>Outcomes</b>	<p><b>Self-harm</b></p> <p><b>Number of participants with at least one episode of NSSH over 18 months follow up</b> MBT: 12 (32 %) ETCM: 17 (50 %) Chi-squared = 2.62 p = 0.11</p> <p><b>Rate of NSSH per patient month (SD) over 18 months follow up</b> MBT: 0.09 (0.2)* ETCM: 0.22 (0.2)* Rate ratio: 0.43 (95% CI 0.30 -0.59) Chi-squared = 2.62 p &lt; 0.001 SD calculated through p-value of 0.001.</p> <p><b>Suicide attempts</b></p> <p><b>Number of participants engaging in SA over 18 months follow up</b> MBT: 19 (50 %) ETCM: 18 (53 %) Chi-squared = 0.06 p = 0.81</p> <p><b>Rate of SA per patient month over 18 months follow up</b> MBT: 0.20 ETCM: 0.14 Rate ratio: 1.48 (95% CI 1.09 -2.02) p = 0.009</p>
<b>Comments</b>	The authors believe the finding of higher SA rate in the MBT group could be a result of switching therapists in the different phases of the MBT treatment, whereas in the ETCM group the therapists remained the same over the study period. This could be of special importance for patients with BPD for whom attachments are particularly problematic and for whom the ending of a relationship can and often does result in intense dysphoria and self-harm. The authors stress the great reductions of SH and SA in both groups over the study period.
<b>Bateman 2009 [31], UK, RCT</b>	
<b>Risk of bias (Overall)</b>	Low
<b>Setting</b>	Hospital specialist personality disorder service
<b>Recruitment</b>	Consecutive referrals for personality disorder treatment from clinical services
<b>Population</b>	Adults with BPD and suicide attempt or episode of life-threatening self-harm within last 6 months. Mean age 31 (SD 8) years at baseline. 80 % female.
<b>Exclusion criteria</b>	Long-term psychotherapeutic treatment, psychotic disorder, bipolar I disorder, opiate dependence requiring specialist treatment, mental impairment or evidence of organic brain disorder.
<b>Follow up</b>	18-months = EOT
<b>Intervention</b>	18-month Mentalization-Based Treatment (MBT) Participants (71) Drop-outs (19) Analyzed at EOT (71)
<b>Comparison</b>	18-month Structured Clinical Management (SCM) Participants (63) Drop-outs (16) Analyzed at EOT (63)
<b>Outcomes</b>	<b>Suicide attempts</b>

	<p><b>Mean number (SD) of patients with at least one suicide attempt in the last six-month period:</b>  MBT: Baseline 53 (74.6 %), EOT 2 (2,82 %)  SCM: Baseline 42 (66.7 %), EOT 16 (25,4%)  Chi-squared = 12.8  P &lt;0.0004  Relative risk=0.11 (95% CI 0.02–0.46)  OR 0.37 (95% CI 0.21-0.62)</p> <p><b>Mean number (SD) of suicide attempts in the last six-month period:</b>  MBT: Baseline 1.28 (1.15), EOT 0.03 (0.17)  SCM: Baseline 1.0 (0.92), EOT 0.32 (0.62)  IRR 0.63 (95% CI 0.53-0.75)</p> <p><b>Number of suicide attempts in the last 18-month period*:</b>  MBT: EOT 72  SCM: EOT 103  *) Data calculated from Table 2.</p> <p><b>Mean number (SD) of suicide attempts in the last 18-month period:</b>  MBT: EOT 1.01  SCM: EOT 1.62  MD (SE): -0.61 (0.1)**  **) SE calculated from data in Table 2</p> <p><b>Self-harm</b>  <b>Number of patients with at least one episode of self-harm in the last six-month period:</b>  MBT: Baseline 55 (77.5 %), EOT 17 (24,0 %)  SCM: Baseline 46 (73.0 %), EOT 27 (42,9%)  Chi-squared = 4.6  p&lt;0.05  Relative risk=0.55 (95% CI 0.33–0.92)  OR 0.39 (95% CI 0.23-0.66)</p> <p><b>Mean number (SD) of self-harm incidents in the last six-month period:</b>  MBT: Baseline 4.11 (4.90), EOT 0.38 (0.83)  SCM: Baseline 3.75 (3.69), EOT 1.66 (2.86),  IRR 0.69 (95% CI 0.59-0.82)</p> <p><b>Depression</b>  <b>Beck Depression Inventory score (BDI), mean scores (SD):</b>  MBT: Baseline 29.83 (10.09), EOT 14.8 (8.55)  SCM: Baseline 29.1 (8.81), EOT 18.7 (8.76)  IRR -1.54 (95% CI -2.67 to -0.42), p&lt;0.01  <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i>  <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p> <p><b>Psychosocial functioning</b>  <b>Global Assessment of Functioning (GAF), mean scores (SD):</b>  MBT: Baseline 41.0 (8.4), EOT 60.9 (15.8),  SCM: Baseline 41.0 (8.4), EOT 53.2 (11.7),  IRR 2.61 (95% CI 1.33 to 3.89), p&lt;0.001  <b>Social Adjustment Scale (SAS), mean scores (SD):</b>  MBT: Baseline 2.74 (0.46), EOT 1.76 (0.50)  SCM: Baseline 2.70 (0.64), EOT 2.17 (0.64)  IRR -0.14 (95% CI -0.21 to -0.08), p&lt;0.001</p> <p><b>Difficulties with relationships</b>  <b>Inventory of Interpersonal Problems, mean scores (SD):</b></p>
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	<p>MBT: Baseline 2.01 (0.54), EOT 1.28 (0.13)  SCM: Baseline 2.04 (0.47), EOT 1.65 (0.55)  IRR -0.12 (95% CI -0.19 to -0.04), p&lt;0.001</p>
<b>Comments</b>	
<b>Bateman 2021 [32], UK, RCT</b>	
<b>Risk of bias (overall)</b>	Some concerns
<b>Setting</b>	Hospital specialist personality disorder service
<b>Recruitment</b>	Consecutive referrals for personality disorder treatment from clinical services
<b>Population</b>	Adults with BPD and suicide attempt or episode of life-threatening self-harm within last 6 months. Baseline: Mean age 31 (SD 8) years at the time of randomization. 80 % female.
<b>Exclusion criteria</b>	Long-term psychotherapeutic treatment, psychotic disorder, bipolar I disorder, opiate dependence requiring specialist treatment, mental impairment or evidence of organic brain disorder.
<b>Follow up</b>	8-year after randomization follow up. Original RCT Bateman 2009 #1449 [ref] investigated 18-month treatment of MBT or SCM.
<b>Intervention</b>	Mentalization-Based Treatment (MBT) Participants (52) Drop-outs of treatment (16)
<b>Comparison</b>	Structured Clinical Management (SCM) Participants (47) Drop-outs of treatment (22)
<b>Outcomes</b>	<p><b>Borderline symptom severity</b>  <b>Number of participants meeting SCID-DSM-criteria for BPD diagnosis:</b>  MBT: Baseline 71/71, 1 year after EOT 5/71  SCM: Baseline 63/63, 1 year after EOT 11/63  No ITT-statistics available (only PP statistics)</p> <p><b>Number of SCID-DSM-criteria (SD) for BPD diagnosis:</b>  MBT: Baseline 5.58 (0.8)*, 1 year after EOT 2.34 (1.86) (n=39)  SCM: Baseline 5.58 (0.8)*, 1 year after EOT 3.03 (2.24) (n=33)  No ITT-statistics available (only PP statistics)  *Value from Table S1, data for all patients who were followed up</p> <p><b>Suicide attempts</b>  <b>Number of patients with at least one ED visit due to suicide attempt, aggregated over a five-year post-treatment period:</b>  MBT: 6 (12%)  SCM: 12 (27%)  Chi-squared = 3.65  p = 0.056  <b>Mean (SE) number of occasions of ED visits due to suicide attempts, aggregated over a five-year post-treatment period:</b>  MBT: 0.02 (0.02), n = 52  SCM: 0.09 (0.05), n =45  IRR (95% CI): 0.28 (0.04-1.98)  p = 0.2</p> <p><b>Self-harm</b>  <b>Number of patients with at least one ED visit due to severe self-harm, aggregated over a five-year post-treatment period:</b>  MBT: 2 (4%), n = 50  SCM: 7 (16%), n = 44  Chi-squared = 3,92  p = 0.047  <b>Mean (SE) number of occasions of ED visits due to severe self-harm, aggregated over a five-year post-treatment period:</b>  MBT: 0.01 (0.01), n = 50, SD = 0.07 (calculated from SE)  SCM: 0.04 (0.03), n = 44, SD = 0.20 (calculated from SE)</p>

	IRR (95% CI): 0.32 (0.02-6.14) p = 0.449
<b>Comments</b>	
<b>Bateman 1999 [33], Bateman 2001 [34], and Bateman 2008 [35], UK, RCT</b>	
<b>Risk of bias</b>	Some concerns (all three studies)
<b>Setting</b>	Partial hospitalization psychotherapy unit.
<b>Recruitment</b>	Consecutive referrals.
<b>Population</b>	Adults with BPD. Mean (SD) age at baseline 32 (6) years. 58 % female.
<b>Exclusion criteria</b>	Schizophrenia, bipolar disorder, substance misuse, mental impairment, organic brain disorder
<b>Follow up</b>	18 months after EOT [34] and eight years after randomization/five years after EOT [35].
<b>Intervention</b>	18-month MBT Participants (25) Drop-out during treatment (6) Analyzed at EOT (22) Drop-out during 18-month follow-up (0) Drop-out during 5-year follow-up (0)
<b>Comparison</b>	18-month TAU (standard treatment in the general psychiatric services) Participants (19) Drop-out during treatment (0 drop-outs, 16 randomized + 3 cross over from MBT group due to ethical reasons) Analyzed at EOT (19) Drop-out during 18-month follow-up (0) Drop-out during 5-year follow-up (0)
<b>Outcomes</b>	<p><b><i>Suicide attempts</i></b>  <b>Number of patients with at least one suicide attempt during the last 6-month period:</b>  MBT: Baseline 18/25, EOT 1/22, 18-month follow-up 4/22, 5-year follow-up 2/22**  TAU: Baseline* 14/16, EOT* 12/19, 18-month follow-up 12/19, 5-year follow-up 8/19**  <i>Group difference at EOT p &lt; 0.001, 18-month p &lt; 0.001, 5-year p &lt; 0.01</i>  *) Data from Figure 1, Bateman 1999  **) Data from figure 1, Bateman 2008.</p> <p><b><i>Self-harm</i></b>  <b>Number of patients with at least one episode of self-harm during the last 6-month period:</b>  MBT: Baseline* 15/19, EOT* 7/19, 18-month follow-up 5/22, 5-year follow-up NO DATA  TAU: Baseline* 17/19, EOT* 16/19, 18-month follow-up 13/19, 5-year follow-up NO DATA  <i>Group difference at EOT p &lt; 0.001, 18-month p &lt; 0.004</i>  *) Data from Figure 1, Bateman 1999</p> <p><b><i>Borderline symptom severity</i></b>  <b>Zanarini Rating Scale for Borderline Personality Disorder, Positive criteria, mean (SD):</b>  MBT: Baseline, EOT, 18-month follow-up NO DATA, 5-year follow-up 3 (14)  TAU: Baseline, EOT, 18-month follow-up NO DATA, 5-year follow-up 13 (87)  <i>Group difference 5-year follow-up, p &lt; 0.001</i></p> <p><b><i>Anxiety</i></b>  <b>Spielberg State-Trait Anxiety Inventory; State (STAI-S), mean score (SD):</b>  MBT: Baseline 68.4 (7.0), EOT 52.5 (11.5), 18-month follow-up 32.6 (5.9), 5-year follow-up NO DATA</p>

	<p>TAU: Baseline 63.2 (6.8), EOT 65.5 (9.3) n = 14, 18-month follow-up 52.4 (10.3) n =15, 5-year follow-up NO DATA</p> <p><b>Spielberg State-Trait Anxiety Inventory; Trait (STAI-T), mean score (SD):</b>          MBT: Baseline 66.5 (6.1) EOT 56.8 (9.1), 18-month follow-up 34.4 (6.1), 5-year follow-up NO DATA          TAU: Baseline 62.0 (9.9), EOT 61.0 (7.6) n =15, 18-month follow-up 42.7 (10.1) n =15, 5-year follow-up NO DATA</p> <p><b>Depression</b>  <b>Beck Depression Inventory-II (BDI-II), mean score (SD):</b>          MBT: Baseline 36.0 (7.6), EOT 20.6 (7.0), 18-month follow-up 11.9 (3.3), 5-year follow-up NO DATA          TAU: Baseline 34.9 (7.4), EOT 35.2 (7.4), 18-month follow-up 20.4 (10.5) n=15, 5-year follow-up NO DATA  <i>Cutoff score 10, signifying an absence of clinically significant symptoms          Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p> <p><b>Psychosocial functioning</b>  <b>Social Adjustment Scale, mean score (SD):</b>          MBT: Baseline NO DATA, EOT 2.8 (0.6) n =20, 18-month follow-up 2.2 (0.5) n =20, 5-year follow-up NO DATA          TAU: Baseline NO DATA, EOT 3.3(0.6), 18-month follow-up 3.5 (0.7), 5-year follow-up NO DATA  <i>Group difference at EOT (F=8.7, df=1, 33, p&lt;0.006), 18-months (F=25.2, df=1, 36, p&lt;0.001)</i></p> <p><b>Global Assessment of Functioning Scale (GAF), mean total score (SD):</b>          MBT: Baseline, EOT, 18-month follow-up NO DATA, 5-year follow-up 5.5 (5.2)          TAU: Baseline, EOT, 18-month follow-up NO DATA, 5-year follow-up 15.1 (5.3)  <i>Group difference 5-year follow-up, p &lt; 0.001</i></p> <p><b>Difficulties with relationships</b>  <b>Inventory of Interpersonal Problems (IIP), mean scores (SD):</b>          MBT: Baseline 2.38 (0.33), EOT 1.86 (0.36) n =21, 18-month follow-up 1.5 (0.4) n =21, 5-year follow-up NO DATA          TAU: Baseline 2.31 (0.32), EOT 2.60 (0.29), 18-month follow-up 2.5 (0.5), 5-year follow-up NO DATA  <i>Group difference at EOT (F=63.7, df=1, 34, p&lt;0.001)</i></p>
<b>Comments</b>	
<b>Laurensen 2018 [36], The Netherlands, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	Mental healthcare institutes
<b>Recruitment</b>	
<b>Population</b>	Adults with BPD mean age 34 years (SD 10), approximately 79% females, and a total score on the BPDSI of at least 20, reflecting severe BPD
<b>Exclusion criteria</b>	Schizophrenia or bipolar disorder, personality Disorders (SCID-I), substance abuse requiring specialist treatment, organic brain disorder, IQ below 80, and inadequate mastery of the Dutch language.
<b>Follow up</b>	
<b>Intervention</b>	Treatment: 18 months Day hospital mentalization-based treatment (MBT-DH) Participants (54) Drop-outs (16) Analysed at EOT (54)
<b>Comparison</b>	Treatment: specialist treatment as usual (S-TAU) Participants (41) Drop-outs (12) Analysed at EOT (41)

<b>Outcomes</b>	<p><b>Borderline symptom severity</b></p> <p><b>Change in the borderline personality disorder severity index (BPDSI), mean (SD):</b>  MBT-DH: baseline 34.32(8.35), 6 mo 30.64 (12.34), 12 mo 25.60 (12.94), 18 mo 20.63 (11.45)  S-TAU: baseline 32.84 (7.15), 6 mo 24.53 (10.59), 12 mo 25.49 (10.56), 18 mo 21.39 (10.43)  Group differences at 18 months 3.43 (95% CI -3.72, 10.57)</p> <p><b>Change in Personality assessment-borderline (PAI-BOR), mean (SD):</b>  Intervention: baseline 50.52 (9.45), 6 mo 46.07 (12.26), 12 mo 40.13 (12.36), 18 mo 41.18 (15.6)  Comparison: baseline 51.45 (7.74), 6 mo 47.43 (11.7), 12 mo 48.38 (40.13), 18 mo 41.78 (11.65)</p> <p><b>Depression</b></p> <p><b>Change in Beck depression inventory (BDI), mean (SD):</b>  MBT-DH: baseline 31.51 (9.67), 6 mo 30.33 (14.37), 12 mo 25.47 (13.95), 18 mo 22.50 (16.57)  S-TAU: baseline 31.86 (10.4), 6 mo 24.58 (11.74), 12 mo 25.31 (9.78), 18 mo 21.11 (9.1)  <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i>  <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p> <p><b>Difficulties with relationships</b></p> <p><b>Change in Inventory of interpersonal problems (IIP-64), mean (SD):</b>  MBT-DH: baseline 3.16 (0.38), 6 mo 3.10 (0.51), 12 mo 2.88 (0.59), 18 mo 2.78 (0.63)  S-TAU: baseline 3.10 (0.38), 6 mo 2.88 (0.57), 12 mo 3.02 (0.42), 18 mo 2.75 (0.57)  interpersonal functioning.</p>
<b>Comments</b>	
<b>Philips 2018 [37], Sweden, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	Stockholm Centre for Dependency Disorders
<b>Recruitment</b>	Outpatient addiction treatment services throughout Stockholm County, through case-finding among the social service offices in the region and through advertising in newspapers
<b>Population</b>	Adults (80.4 % female), mean age 36.7 (SD 9.6), in the range from 20 to 54 years, fulfilling diagnostic criteria for BPD and substance dependence in accordance with the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV), and currently undergoing treatment at a substance dependence treatment clinic.
<b>Exclusion criteria</b>	Schizophrenia, schizoaffective disorder, bipolar disorder type I, cognitive impairment (including mild cognitive impairment: IQ <85), autism spectrum disorders, psychopathy, participation in psychotherapy outside of the study (ongoing or terminated less than 90 days before inclusion) and not being able to communicate in the Swedish language without an interpreter.
<b>Follow up</b>	
<b>Intervention</b>	Treatment: 18 months MBT Participants (24) Drop-outs (n) Lost to follow up (11) Analyzed at EOT (13)
<b>Comparison</b>	Treatment: 18 months TAU Participants (22) Drop-outs (n) Lost to follow up (11) Analyzed at EOT (11)

<b>Outcomes</b>	<p><b>Suicide attempts</b>  <b>Number of SA during treatment:</b>  MBT: 0/24  TAU: 4/22</p> <p><b>Borderline symptom severity</b>  <b>The BPD Severity Index-IV (BPDSI-IV), mean (SD):</b>  MBT: baseline 24.6 (10.4), EOT 17.0 (9.1)  TAU: baseline 25.8 (6.6), EOT 20.7 (9.1)  Cohen's d 0.41 MBT better</p> <p><b>Self-harm</b>  <b>Self-Harm Inventory (DSHI-9), mean (SD):</b>  MBT: baseline 1.8 (3.6), EOT 2.3 (5.5)  TAU: baseline 3.2 (4.4), EOT 2.2 (4.8)  MD (95 % KI) 0.10 (-4.02 - 4.22)*  *) Calculation in RevMan 5.4.1 with Random Effects model.</p> <p><b>Difficulties with relationships</b>  <b>Inventory of Interpersonal Problems (IIP), mean (SD):</b>  MBT: baseline 2.0 (0.62), EOT 1.5 (0.54)  TAU: baseline 2.2 (0.60), EOT 1.7 (0.56)  Cohen's d 0.36</p>
<b>Comments</b>	Completer and ITT analyses gave equivalent results and therefore only the results from completer analyses are described.
<b>Jorgensen 2013 [38] and Jorgensen 2014 [39], Denmark, RCT</b>	
<b>Risk of bias</b>	Som concerns in both studies
<b>Setting</b>	Out-patient treatment. Clinic for Personality Disorders specializing in the assessment and psychotherapeutic treatment of BPD.
<b>Recruitment</b>	Referrals from psychiatric wards, out-patient clinics, community psychiatric units and psychiatrists in private practice.
<b>Population</b>	Adults (>21 years) with BPD and a global assessment of functioning (GAF) score above 34. Mean age (SD) at baseline 30 (7) years. 95 % Female.
<b>Exclusion criteria</b>	Patients who met the diagnostic criteria for antisocial or paranoid PD were excluded as were patients with severe substance abuse requiring specialist treatment.
<b>Follow up</b>	18 months after EOT [39]
<b>Intervention</b>	24 months of MBT Participants (58) Drop-outs from treatment (16) Analyzed at EOT (38) Analyzed at follow-up (38)
<b>Comparison</b>	24 months of Supportive group therapy (SGT) Participants (27) Drop-outs from treatment (6) Analyzed at EOT (17) Analyzed at follow-up (16)
<b>Outcomes</b>	<p><b>Borderline symptom severity</b>  <b>Structured clinical interview for DSM-IV personality disorders, borderline personality disorder (SCID-BPD), mean criteria (SD):</b>  MBT: Baseline 6.7 (1.2), EOT 2.8 (2.5), follow-up 2.2 (2.4)  SGT: Baseline 6.9 (1.3), EOT 3.6 (2.1), follow-up 2.5 (2.7)</p> <p><b>Depression</b>  <b>Beck Depression Inventory (BDI), mean score (SD):</b>  MBT: Baseline 31.5 (10.7), EOT 18.8 (11.5), follow-up 17.5 (13.5)  SGT: Baseline 37.5 (10.6), EOT 22.8 (13.7), follow-up 22.2 (15.8)  Cutoff score 10, signifying an absence of clinically significant symptoms  Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</p>

	<p><b>Anxiety</b></p> <p><b>Beck Anxiety Inventory (BAI), mean score (SD):</b>  MBT: Baseline 18.6 (9.0), EOT 13.5 (10.7), follow-up 11.2 (10.6)  SGT: Baseline 23.7 (11.2), EOT 15.6 (10.1), follow-up 17.3 (12.8)</p> <p><b>Spielberg State-Trait Anxiety Inventory; Trait (STAI-T), mean score (SD):</b>  MBT: Baseline 60.7 (8.6), EOT 49.3 (11.6), follow-up 49.0 (12.7)  SGT: Baseline 64.9 (5.3), EOT 51.6 (16.8), follow-up 54.5 (11.0)</p> <p><b>Spielberg State-Trait Anxiety Inventory; State (STAI-S), mean score (SD):</b>  MBT: Baseline 57.2 (11.0), EOT 47.3 (16.0), follow-up 47.6 (15.6)  SGT: Baseline 63.5 (8.9), EOT 50.3 (17.6), follow-up 53.8 (15.4)</p> <p><b>Psychosocial function</b></p> <p><b>Social Adjustment Scale, self-rating (SAS-SR), mean score (SD):</b>  MBT: Baseline 2.6 (0.4), EOT 2.2 (0.5), follow-up 2.1 (0.5)  SGT: Baseline 2.8 (0.6), EOT 2.1 (0.6), follow-up 2.2 (0.8)</p> <p><b>Global assessment of function (GAF-F), mean score (SD):</b>  MBT: Baseline 47.4 (7.3), EOT 57.6 (11.2), follow-up 60.5 (13.4) n =40  SGT: Baseline 45.0 (8.6), EOT 54.2 (13.5) n =17, follow-up 53.9 (13.1) n =16  <i>GAF score above 60 is used as a cut-off for mild but persistent symptoms and some non-severe difficulties in social, occupational or educational functioning.</i></p> <p><b>Difficulties with relationships</b></p> <p><b>Inventory of Interpersonal Problems (IIP), mean scores (SD):</b>  MBT: Baseline 1.7 (0.6), EOT 1.2 (0.6), follow-up 1.2 (0.8)  SGT: Baseline 1.9 (0.6), EOT 1.3 (0.8), follow-up 1.4 (0.9)</p> <p>Results from per-protocol analyses not extracted due to a high risk of bias.</p>
<b>Comments</b>	
<b>Robinson 2016 [40], UK, RCT</b>	
<b>Risk of bias</b>	
<b>Setting</b>	Outpatient
<b>Recruitment</b>	Participants recruited from clinical centres by referral from doctors working in the outpatient services of each centre. Referrals received by trial manager, who contacted the potential participant and provided the participant information sheet.
<b>Population</b>	Adults with a DSM-IV diagnosis of an eating disorder who fulfilled either DSM-IV criteria for borderline personality disorder or had borderline personality disorder symptoms. Impulsivity in at least 2 areas that are potentially self-damaging. Recurrent suicidal behaviour or self-mutilating behaviour. Mean (SD) age 31 (10) years. 93 % female. 76 % had BPD. Anorexia 5.9%, bulimia 63.2%, binge eating disorder 2.9%, eating disorder not otherwise specified 27.9%.
<b>Exclusion criteria</b>	Current psychosis. Current inpatient or day-patient. Currently in individual or group psychological therapy. Received MBT less than 6 months prior to randomization. Organic brain disease leading to significant cognitive impairment. BMI less than 15 kg/m <sup>2</sup> .
<b>Follow up</b>	18 months/36 months (6 months or 2 years after EOT)
<b>Intervention</b>	12-month Mentalisation-based treatment for eating disorders (MBT-ED) Participants (34) Drop-outs of treatment (12) Data contribution at EOT (12) Data contribution at 36 month follow up (10)
<b>Comparison</b>	12-month Specialist supportive clinical management for eating disorders (SSCM-ED) Participants (34) Drop-outs of treatment (9)



	Data contribution at EOT (11) Data contribution at 36 month follow up (9)
<b>Outcomes</b>	<p><b>Borderline symptom severity</b>  <b>Zanarini Rating Scale for BPD, mean global score (SD):</b>  MBT: Baseline 16.12 (6.3), EOT 9.64 (7.41), 6 mo follow up 7.1 (6.19)  SSCM: Baseline 16.74 (6.0), EOT 9.27 (7.39), 6 mo follow up 10 (7.97)  <i>Mean difference (SE) MBT-SSCM:</i>  EOT: -2.50 (-1.84), p = 0.18  6 mo follow up: -2.59 (-2.49), p = 0.30  <i>Total score range 0 to 36</i></p> <p><b>Adverse events</b>  MBT: EOT 1/34  SSCM: EOT 0/34  <i>Risk ratio calculated in RevMan 5.4.1, random effects model: 3.00, 95 % CI [0.13, 71.15]</i></p> <p><i>Depression/anxiety (DASS) and Psychosocial functioning (GAF) only available as effect sizes (Cohen's d) between MBT-ED and SSCM, not extracted.</i></p>
<b>Comments</b>	
<b>Adolescents with SH/SB (without BPD) receiving DBT</b>	
<b>Mehlum 2014 [41] and Mehlum 2016 [42], Mehlum 2019 [43] Norway, RCT</b>	
<b>Risk of bias (overall)</b>	Low in all three studies
<b>Setting</b>	Child and adolescent psychiatric outpatient clinic
<b>Recruitment</b>	Consecutive referrals from child and adolescent psychiatric outpatient clinics, general practitioners, child protection services, or school health services
<b>Population</b>	Self-harming adolescents with at least 1-2 BPD criteria and subthreshold-level criteria. Mean no (SD) of BPD-criteria 4.0 (2.0). Mean age 16 years (SD 1,5) at baseline. 88 % female.
<b>Exclusion criteria</b>	Bipolar disorder (except bipolar II), schizophrenia, schizoaffective disorder, psychotic disorder not otherwise specified, intellectual disability, Asperger syndrome, not fluent in Norwegian.
<b>Follow up</b>	First follow up 12 months after EOT [42], second follow-up 36 months after EOT [43].
<b>Intervention</b>	19-week DBT-A (DBT-adolescents treatment) Participants (39) Drop-outs during treatment (10) (less than 50% of therapy sessions) Assessed at EOT (39) Drop-outs during first follow-up (1) Drop-outs during second follow-up (2)
<b>Comparison</b>	19-week EUC (enhanced usual care) Participants (38) Drop-outs during treatment (11) (less than 50% of therapy sessions) Assessed at EOT (38) Drop-outs during first follow-up (1) Drop-outs during second follow-up (4)
<b>Outcomes</b>	<p><b>Borderline symptom severity</b>  <b>Borderline Symptoms List (BSL), mean scores (SD):</b>  DBT: Baseline 38.47 (19.32), EOT 21.34 (14.38), follow up 24.45 (19.17), 2<sup>nd</sup> follow up 26.48 (21.80)  EUC: Baseline 40.18 (21.66), EOT 34.75 (22.15), follow up 23.09 (20.91), 2<sup>nd</sup> follow up 28.81 (20.62)  Between-group slope changes per week, week 1-19: -0.5, p = 0.05</p> <p><b>Self harm</b>  <b>Number of self-harm episodes in the last 6 weeks at EOT, mean (SD):</b>  DBT: 1.2 (2.0)</p>

	<p>EUC: 3.3 (6.8)</p> <p><b>Number of self-harm episodes, mean (95 %CI):</b>  DBT: Baseline - EOT 9.0 (4.8–13.2), EOT-Follow-up 5.5 (1.7–9.1)  EUC: Baseline - EOT 22.5 (11.4 to 33.5), EOT-Follow-up 14.8 (7.3 to 22.3)  The between-group difference was statistically significant at both time intervals (<math>p &lt; .05</math>)</p> <p><b>Emergency department visits due to self-harm, n:</b>  DBT: Baseline - EOT 3/39 (7.7%), EOT-Follow-up 8/36 (22.1 %)  EUC: Baseline - EOT 8/36 (18.4 %), EOT-Follow-up 4/33 (12.1%)  Ns at both time intervals</p> <p><b>Suicidal ideation</b>  <b>Suicidal Ideation Questionnaire- Junior Version (SIQ-JR), mean scores (SD):</b>  DBT: Baseline 36.91 (20.82), EOT 18.30 (11.11), follow up 20.45 (19.15), 2<sup>nd</sup> follow up 19.64 (18.54)  EUC: Baseline 36.91 (26.73), EOT 32.56 (23.99), follow up 22.05 (21.86), 2<sup>nd</sup> follow up 23.15 (18.12)  Between-group slope changes per week, week 1-19: -0.62, <math>p=0.01</math>  <i>Clinical cut-off usually regarded as 31</i> (Reynolds Jr. Sch Psychol Rev. 1999;28:17-30)</p> <p><b>Depression</b>  <b>Self-report Mood and Feelings Questionnaire (SMFQ), mean scores (SD):</b>  DBT: Baseline 14.92 (5.35), EOT 10.19 (5.04), follow up 9.88 (5.53), 2<sup>nd</sup> follow up 9.54 (5.32)  EUC: Baseline 15.11 (6.23), EOT 12.58 (6.62), follow up 9.19 (6.57), 2<sup>nd</sup> follow up 10.56 (6.28)  Between-group slope changes per week, week 1-19: -0.10, <math>p=0.18</math></p> <p><b>Montgomery-Åsberg Depression Scale (MADRS), mean scores (SD):</b>  DBT: Baseline 19.03 (7.84), EOT 12.29 (7.52), follow up 15.09 (8.08), 2<sup>nd</sup> follow up 11.69 (7.22)  EUC: Baseline 17.50 (7.13), EOT 15.76 (8.14), follow up 15.73 (9.06), 2<sup>nd</sup> follow up 10.33 (7.03)  Between-group slope changes per week, week 1-19: -0.22, <math>p=0.02</math></p> <p><b>Psychosocial functioning</b>  <b>Children's Global Assessment Scale (C-GAS), mean (SD):</b>  DBT: Baseline 52.9 (7.3), EOT 65.88 (9.52), follow up 65.68 (11.81), 2<sup>nd</sup> follow up 64.97 (11.75)  EUC: Baseline 51.8 (5.9), EOT 65.89 (13.03), follow up 64.22 (14.13), 2<sup>nd</sup> follow up 66.12 (11.19)</p>
<b>Comments</b>	
<b>Santamarina-Perez 2020 [44], Spain, RCT</b>	
<b>Risk of bias</b>	Low
<b>Setting</b>	Community child and adolescent outpatient clinic
<b>Recruitment</b>	Outpatient and inpatient from Child and Adolescent Psychiatry and Psychology Department of the Neuroscience Institute of the Hospital Clinic in Barcelona
<b>Population</b>	Adolescents (88.6 % girls) aged between 12 years 0 months and 17 years 11 months, mean age 15.3 (SD 1.4) with the presence of repetitive NSSI and/or SAs over the last 12 months and deemed to be at current high risk of suicide, as assessed by the Columbia Suicide Severity Rating Scale (C-SSRS), and with at least one parent or guardian willing to participate in family sessions.
<b>Exclusion criteria</b>	IQ below 70 on the Wechsler Intelligence Test, acute psychopathology requiring inpatient treatment at the time of recruitment, low-weight anorexia nervosa as determined, following criteria by the (DSM-IV-TR),

	and substance dependence (though concurrent substance abuse was not exclusionary)
<b>Follow up</b>	16 weeks (EOT)
<b>Intervention</b>	Treatment: 16-week DBT-A Participants (18) Drop-outs (n) Lost to follow up (4) 18 in analyses
<b>Comparison</b>	Treatment: 16 week TAU + group sessions (GS) Participants (17) Drop-outs (n) Lost to follow up (3) 17 in analyses
<b>Outcomes</b>	<p><b>NSSI, frequency in the last four weeks of treatment, Baseline-adjusted means</b> DBT-A: 1.3 (0.7–1.9) TAU+GS: 2.1 (1.5–2.7)</p> <p>Treatment effect of -0.8 (95% CI -1.7 to -0.02), Cohen's d = 0.73 in favor of DBT</p> <p><b>Suicide attempts</b> DBT-A: 0 TAU+GS: 0</p> <p><b>Suicidal Ideation Questionnaire (SIQ-JR), Baseline-adjusted means</b> DBT-A: 35.6 (26.7–44.6) TAU+GS: 40.1 (30.2–50)</p> <p>No statistically significant differences between the two groups</p> <p><b>Beck Depression Inventory (BDI-II), Baseline-adjusted means</b> DBT-A: 25.8 (18.1–33.3) TAU+GS: 28.7 (20.4–37.3) No statistically significant differences between the two groups <i>Cutoff score 10, signifying an absence of clinically significant symptoms Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p> <p><b>Psychosocial functioning</b> <b>Children's Global Assessment Scale (C-GAS), Baseline-adjusted means</b> DBT-A: 64.6 (61.0–68.2) TAU+GS: 54.6 (51.1–58.1)</p> <p>Treatment effect of 10 (95%CI 5.0–15) Cohen's d = 1.26 in favor of the DBT-A group.</p>
<b>Comments</b>	The duration of treatment was 16 weeks for both groups.
<b>Adults with SH/SB (without BPD) receiving DBT</b>	
No studies included	
<b>Adolescents with SH/SB (without BPD) receiving MBT</b>	
No studies included	
<b>Adults with SH/SB (without BPD) receiving MBT</b>	
No studies included	
<b>Adolescents with BED/BN receiving DBT</b>	
No studies included	
<b>Mazzeo 2016 [45], USA, RCT</b>	
<b>Risk of bias</b>	High
<b>Setting</b>	
<b>Recruitment</b>	

<b>Population</b>	Females, age (mean = 15.42 (SD = 1.73)), who met criteria for LOC-Eating Disorder or BED in children and spoke English
<b>Exclusion criteria</b>	
<b>Follow up</b>	
<b>Intervention</b>	Treatment Participants (n) Drop-outs (n)
<b>Comparison</b>	Treatment Participants (n) Drop-outs (n)
<b>Outcomes</b>	
<b>Comments</b>	
<b>Adults with BED/BN receiving DBT</b>	
<b>Dastan 2020 [46], Iran, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	
<b>Recruitment</b>	Convenience sampling from outpatient nutrition clinics
<b>Population</b>	Women with BED aged 18-50. 58 % of the women were aged 31-40.
<b>Exclusion criteria</b>	Any other eating disorders, pregnancy, substance use, severe physical illnesses, receiving any kind of psychotherapy, any dietary regime.
<b>Follow up</b>	20 weeks (EOT)
<b>Intervention</b>	20 week DBT-ST (group therapy) Participants (20) Drop-outs (0)
<b>Comparison</b>	No intervention Participants (20) Drop-outs (0)
<b>Outcomes</b>	<p><b>Emotion regulation</b></p> <p><b>Emotional eating scale (EES)</b>  <i>Subscale Anger/frustration, mean (SD):</i>            DBT baseline 31.10 (4.36), EOT: 25.85 (3.36)            Control group baseline 32.80 (3.59), EOT: 32.60 (4.21)            F (1,35) = 38.33, p &lt; 0.001</p> <p><i>Subscale Anxiety, mean (SD):</i>            DBT baseline 30.80 (3.36), EOT: 26.30 (3.31)            Control group baseline 31.50 (2.60), EOT: 30.70 (3.72)            F (1,35) = 21.60, p &lt; 0.001</p> <p><i>Subscale Depression, mean (SD):</i>            DBT baseline 32.15 (5.12), EOT: 29.30 (5.01)            Control group baseline 31.50 (5.46), EOT: 29.15 (3.63)            F (1,35) = 0.05, p = 0.94</p> <p><i>The EES is a 25-item self-report scale that measures the intensity of the relationship between mood and eating. The items are scored on a 5-point Likert scale (1 to 5) with a higher score indicating stronger urge to eat following certain feelings.</i></p> <p><b>ED-Specific psychopathology</b></p> <p><b>Multidimensional body self-relations questionnaire-appearance scale (MBSRQ-AS)</b>  <i>Subscale Appearance evaluation, mean (SD):</i>            DBT baseline 28.60 (2.94), EOT: 29.25 (2.17)            Control group baseline 26.10 (4.88), EOT: 26.01 (3.26)            F (1,34) = 5.78, p = 0.02</p> <p><i>Subscale Appearance orientation, mean (SD):</i>            DBT baseline 43.30 (4.94), EOT: 48.75 (6.72)</p>

	<p>Control group baseline 43.45 (6.06), EOT: 43.15 (5.69)  <math>F(1,34) = 50.88, p &lt; 0.001</math></p> <p><i>Subscale Overweight preoccupation, mean (SD):</i>  DBT baseline 17.40 (1.50), EOT: 13.95 (1.87)  Control group baseline 17.65 (1.26), EOT: 17.95 (1.82)  <math>F(1,34) = 44.42, p &lt; 0.001</math></p> <p><i>Subscale Anger/frustration, mean (SD):</i>  DBT baseline 35.25 (3.12), EOT: 39.40 (2.92)  Control group baseline 37.95 (5.32), EOT: 38.35 (3.73)  <math>F(1,34) = 10.16, p = 0.03</math></p> <p><i>The MBSRQ-AS consists of 34 items allocated to four subscales. The items are rated on a 5-point Likert scale ranging from 1 (definitely disagree) to 5 (definitely agree). Higher scores indicate a more healthy body self-relation for all subscales except for subscale Overweight preoccupation.</i></p>
Comments	
<b>Safer 2001 [47], USA, RCT</b>	
Risk of bias	Some concerns
Setting	Outpatient
Recruitment	Newspaper advertisements and clinic referrals
Population	Women 18–65 years with at least one binge/purge episode per week over the previous 3 months. BN (81%) and sub-clinical BN (19%). Mean (SD) age 34 (11) years.
Exclusion criteria	BMI <17.5, psychosis or severe depression with suicidal ideation, active drug/alcohol abuse, concurrent participation in psychotherapy, concurrent use of antidepressants or mood stabilizers.
Follow up	20 week (EOT)
Intervention	20-week DBT Participants (14) Drop-outs (2) Analysed at EOT 14
Comparison	20 week WL Participants (15) Drop-outs (1) Analysed at EOT 15
Outcomes	<p><b><i>Binge eating episodes</i></b>  <b>Number of participants with at least one binge day during the last 28 days:</b>  DBT: Baseline 14/14, EOT 10/14  WL: Baseline 15/15, EOT 15/15</p> <p><b>Number of binge episodes (assessed in the last 28 days), median:</b>  DBT: Baseline 27.0, EOT 1.5  WL: Baseline 22.0, EOT 20.0  <i>No SD data (or similar) available.</i>  <math>F(1,26) = 30.87, p &lt; 0.001</math></p> <p><b>Number of purge episodes (assessed in the last 28 days), median:</b>  DBT: Baseline 40.0, EOT 1.0  WL: Baseline 28.0, EOT 28.0  <i>No SD data (or similar) available.</i>  <math>F(1,26) = 11.29, p = 0.002</math></p> <p><b><i>ED-specific psychopathology</i></b>  <b>Rosenberg Self-Esteem Scale (RSE) mean score (SD):</b>  DBT Baseline, EOT: 23.5 (4.5), 26.4 (5.0)  WL Baseline, EOT: 25.6 (5.9), 25.4 (6.4)  <math>F(1,26) = 2.78, p = 0.11</math></p>

	<p><b>Depression</b>  <b>Beck Depression Inventory (BDI) mean score (SD):</b>  DBT Baseline, EOT: 22.9 (8.9), 13.4 (11.6)  WL Baseline, EOT: 19.2 (11.9), 17.4 (11.8)  <math>F(1,25) = 4.83, p &lt; 0.04</math>  <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i>  <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p> <p><b>Emotion regulation</b>  <b>Emotional Eating Scale (EES) mean scores (SD):</b>  <i>Anger</i>  DBT Baseline, EOT: 2.7 (0.8), 1.8 (0.8)  WL Baseline, EOT: 2.7 (0.6), 2.6 (0.9)  <math>F(1,26) = 8.96, p = 0.006</math>  <i>Anxiety</i>  DBT Baseline, EOT: 2.1 (0.8), 1.3 (0.9)  WL Baseline, EOT: 2.1 (0.9), 2.0 (0.8)  <math>F(1,26) = 8.89, p = 0.006</math>  <i>Depression</i>  DBT Baseline, EOT: 2.9 (0.7), 2.1 (1.0)  WL Baseline, EOT: 2.7 (0.9), 2.6 (0.7)  <math>F(1,26) = 8.14, p = 0.008</math></p> <p><b>Positive and Negative Affect Scale (PANAS) mean scores (SD):</b>  <i>Positive</i>  DBT Baseline, EOT: 24.8 (8.3), 27.6 (8.2)  WL Baseline, EOT: 26.1 (6.5), 28.3 (7.9)  <math>F(1,25) = 0.01, p = 0.94</math>  <i>Negative</i>  DBT Baseline, EOT: 31.5 (9.9), 23.4 (8.4)  WL Baseline, EOT: 28.6 (6.9), 30.0 (9.7)  <math>F(1,25) = 6.30, p &lt; 0.02</math></p> <p><b>Negative Mood Regulation Scale (NMR) mean scores (SD):</b>  DBT Baseline, EOT: 81.3 (15.1), 96.1 (24.0)  WL Baseline, EOT: 98.1 (16.8), 97.7 (15.0)  <math>F(1,26) = 5.94, p &lt; 0.03</math></p>
<b>Comments</b>	
<b>Hill 2011 [48], USA, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	
<b>Recruitment</b>	
<b>Population</b>	Women, average age 22.0 years, with binge/purge episodes at least one time per week an average of at least one binge eating and one vomit episode per week over the previous 3 months, and used vomiting as their primary compensatory behavior
<b>Exclusion criteria</b>	Age less than 18 years, current diagnosis of anorexia nervosa (AN) or BED, concurrent psychotherapy focused on eating issues, current suicidal ideation, substance dependence at the level deemed to interfere with treatment, cognitive impairment at the level deemed to interfere with treatment, and past or present psychosis. Men were excluded from the study in light of its preliminary nature and the much higher prevalence of BN in women
<b>Follow up</b>	12 weeks (EOT)
<b>Intervention</b>	Treatment: 12 week appetite focused DBT (DBT-AF) Participants (18) Drop-outs (2)
<b>Comparison</b>	Treatment: Waitlist (WL) Participants (14) Drop-outs (2)
<b>Outcomes</b>	Assessments at 6 weeks

	<p><b>Objective binge episodes/28 days, Mdn (range)</b>  DBT-AF: pre 15.50 (5–50), post 4.00 (0–50)  WL: pre 18.00 (9–36), post 9.5 (5–40)  p&lt;0.05</p> <p><b>Subjective binge episodes/28 days, Mdn (range)</b>  DBT-AF: pre 4.5 (0–43), post 0 (0–43)  WL: pre 0 (0–60), post 0 (0–60)  P=0.3</p> <p><b>Vomit episodes/28 days, Mdn (range)</b>  DBT-AF: pre 15.50 (4–50), post 2.50 (0–50)  WL: pre 23.5 (6–38), post 12.5 (1–60)  P&lt;0.05</p> <p><b>ED-specific psychopathology</b></p> <p><b>Eating disorder examination—questionnaire, global score mean (SD)</b>  DBT-AF: pre 3.61 (1.16), post 2.48 (1.39)  WL: pre 4.24 (.99), post 3.98 (1.09)  P&lt;0.05</p> <p><b>Emotion regulation</b></p> <p><b>Emotional eating scale, global score mean (SD)</b>  DBT-AF: pre 3.27 (0.67), post 2.91 (0.89)  WL: pre 3.15 (0.48), post 3.07 (0.49)  P=0.25</p> <p><b>Negative mood regulation scale mean (SD)</b>  DBT-AF: pre 100.33 (17.72,) post 106.78 (15.98)  WL: pre 103.32 (12.87), post 102.76 (7.94)  P=0.13</p> <p><b>Positive and negative affect scale mean (SD)</b></p> <p><b>Positive affect</b>  DBT-AF: pre 28.33 (9.13), post 32.89 (7.01)  WL: pre 29.71 (8.32), post 28.64 (5.21)  P&lt;0.05</p> <p><b>Negative affect</b>  DBT-AF: pre 26.57 (7.91), post 23.78 (7.25)  WL: pre 27.50 (6.97), post 27.79 (7.62)  P=0.11</p> <p><b>Depression</b></p> <p><b>Beck depression inventory-II M (SD) mean (SD)</b>  DBT-AF: pre 16.23 (10.40), post 9.23 (8.43)  WL: pre 18.00 (6.32), post 16.79 (7.92)  P&lt;0.05</p>
<b>Comments</b>	After the 6-week assessment, eight participants from the waitlist condition agreed to start treatment. Two of these eight dropped out during their treatment.
<b>Masson 2013 [49], Canada, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	Home, self-help.
<b>Recruitment</b>	Local media
<b>Population</b>	Adults with BED. Mean (SD) age 43 (11) years. Females 88 %.
<b>Exclusion criteria</b>	Concurrent psychotherapy for binge eating, active psychosis; BMI < 17.5, use of compensatory behaviour at least once a week over the past three months, unstable dose of psychotropic medication over the last three months.
<b>Follow up</b>	6 months

<b>Intervention</b>	13-week DBT-guided self-help (BED self-help manual, six biweekly 20-min support phone calls) Participants (30) Drop-outs (9)
<b>Comparison</b>	WL Participants (30) Drop-outs (3)
<b>Outcomes</b>	<p><b>Binge eating episodes</b> <b>Objective binge-episode frequency (assessed in the last month), mean (SD):</b> DBT: Baseline 18.67 (13.17), EOT 5.97 (9.42), follow-up 9.53 (11.89) WL: Baseline 19.60 (11.91), EOT 14.37 (11.86), follow-up no data</p> <p><b>ED-specific psychopathology</b> <b>Eating Disorders Examination Questionnaire (EDE-Q) total score (assessed in the last month), mean (SD):</b> DBT: Baseline 4.68 (0.71), EOT 3.65 (1.03), follow-up 3.42 (1.12) WL: Baseline 4.60 (0.85), EOT 4.36 (1.00), follow-up -</p> <p><b>Emotion regulation</b> <b>Difficulties in Emotion Regulation Scale (DERS), mean scores (SD):</b> DBT: Baseline 100.02 (26.38), EOT 84.39 (26.81), follow-up 82.48 (27.67) WL: Baseline 100.96 (23.36), EOT 104.03 (24.64), follow-up no data</p>
<b>Comments</b>	
<b>Rahmani 2018 [50], Iran, RCT</b>	
<b>Risk of bias</b>	Low
<b>Setting</b>	Specialized Nutrition Clinic
<b>Recruitment</b>	Referrals
<b>Population</b>	Adults with BED. Mean (SD) age 30 (8) years. 100 % female.
<b>Exclusion criteria</b>	Non-psychological diagnosis, compensative or purging behaviours, severe physical illnesses as the main reason of obesity, pregnancy or lactation, major depression disorder, history of drug abuse, being absent for more than 3 sessions, and history of receiving psychological intervention during the past month.
<b>Follow up</b>	At EOT
<b>Intervention</b>	10-week DBT (2 session/week) Participants (30) Drop-outs (3)
<b>Comparison</b>	WL Participants (30) Drop-outs (3)
<b>Outcomes</b>	<p><b>Emotion regulation</b> <b>Difficulties in Emotion Regulation Scale (DERS), mean scores (SD):</b> DBT: Baseline 148.23 (15.66), EOT 64.50 (9.71), mean change -79.30 (27.83) WL: Baseline 144.03 (25.64), EOT 159.11 (4.61), mean change -15.43 (24.32), p = 0.01 36 questions. Responses from 1 to 5 on a Likert scale. Higher scores show more difficulties in emotion regulation.</p> <p><b>ED-specific psychopathology</b> <b>Binge eating scale (BES), mean score (SD):</b> DBT: Baseline 23.80 (4.80), EOT 16.46 (2.19), mean change -6.73 (3.22) WL: Baseline 22.53 (5.04), EOT 20.03 (2.68), mean change -1.36 (1.90), p = 0.00 Overall score ranges from 0 to 46. 17 or less indicates a lack of binge eating. 18-26 indicates medium binge eating. 27 or higher indicates severe binge eating.</p>
<b>Comments</b>	



<b>Telch 2001 [51], USA, RCT</b>	
<b>Risk of bias</b>	Some concerns
<b>Setting</b>	Outpatient
<b>Recruitment</b>	Newspaper advertisements
<b>Population</b>	Females 18-65 years with BED, mean (SD) age 50 (6) years.
<b>Exclusion criteria</b>	Current involvement in psychotherapy, weight loss treatment, use of psychotropic Medications, current substance abuse or dependence, current suicidality or psychosis, pregnancy.
<b>Follow up</b>	6 months after EOT (Treatment group only)
<b>Intervention</b>	20-week DBT-ST Participants (22) Drop-outs (4) Lost to follow up (0)
<b>Comparison</b>	20-week WL Participants (22) Drop-outs (6)
<b>Outcomes</b>	<p><b>Binge eating episodes</b></p> <p><b>Mean (SD) number of binge days during the last 28 days:</b> DBT-ST: 10.5 (9.0), EOT 0 (0) WL: 14.0 (5.0), EOT 8.5 (10) F (1,31) = 41.3, p &lt; 0.0001</p> <p><b>Mean (SD) number of binge episodes during the last 28 days:</b> DBT-ST: 11.5 (10.8), EOT 0 (0) WL: 14.5 (7.5), EOT 10 (14) F (1,31) = 39.0, p &lt; 0.0001</p> <p><b>ED-specific psychopathology</b></p> <p><b>Eating Disorders Examination (EDE) mean score (SD):</b> <i>No Global score available</i> <i>Weight concerns</i> DBT-ST: Baseline 3.4 (1.1), EOT 2.2 (0.9) WL: Baseline 3.6 (0.6), EOT 3.1 (1.0) F (1,31) = 5.9, p = 0.020 <i>Shape Concerns</i> DBT-ST: Baseline 3.7 (0.7), EOT 2.3 (0.9) WL: Baseline 4.0 (0.8), EOT 3.1 (1.0) F (1,31) = 4.9, p = 0.030 <i>Eating Concerns</i> DBT-ST: Baseline 1.6 (1.1), EOT 0.4 (0.4) WL: Baseline 1.8 (1.0), EOT 1.4 (0.9) F (1,31) = 20.9, p &lt; 0.0001 <i>Restraint</i> DBT-ST: Baseline 1.6 (1.0), EOT 1.4 (1.0) WL: Baseline 1.9 (1.1), EOT 1.8 (1.3) F (1,31) = 1.0, p = 0.33</p> <p><b>Binge eating scale (BES), mean score (SD):</b> DBT-ST: Baseline 28.8 (6.1), EOT 15.7 (9.4) WL: Baseline 31.8 (6.0), EOT 28.2 (8.3) F (1,29) = 14.0, p = 0.001 <i>Overall score ranges from 0 to 46. 17 or less indicates a lack of binge eating. 18-26 indicates medium binge eating. 27 or higher indicates severe binge eating</i></p> <p><b>Rosenberg Self-Esteem Scale (RSE) mean score (SD):</b> DBT-ST: Baseline 26.0 (6.8), EOT 29.4 (6.1) WL: Baseline 28.9 (5.0), EOT 29.2 (4.5) F (1,30) = 3.5, p = 0.07</p> <p><b>Emotion regulation</b></p> <p><b>Emotional Eating Scale (EES) mean scores (SD):</b></p>

	<p><i>Anger</i> DBT-ST: Baseline 2.5 (0.8), EOT 1.8 (1.0) WL: Baseline 2.8 (0.6), EOT 2.6 (0.9) <math>F(1,30) = 4.2, p = 0.05</math></p> <p><i>Anxiety</i> DBT-ST: Baseline 2.3 (0.9), EOT 1.5 (0.9) WL: Baseline 2.7 (0.6), EOT 2.4 (1.0) <math>F(1,30) = 3.9, p = 0.06</math></p> <p><i>Depression</i> DBT-ST: Baseline 3.0 (0.7), EOT 2.4 (1.0) WL: Baseline 3.3 (0.7), EOT 3.0 (0.8) <math>F(1,30) = 2.8, p = 0.10</math></p> <p><b>Positive and Negative Affect Scale (PANAS) mean scores (SD):</b></p> <p><i>Positive</i> DBT-ST: Baseline 25.8 (7.5), EOT 30.0 (10.8) WL: Baseline 31.9 (8.2), EOT 31.2 (7.8) <math>F(1,30) = 2.7, p = 0.11</math></p> <p><i>Negative</i> DBT-ST: Baseline 23.6 (8.8), EOT 17.9 (6.7) WL: Baseline 22.8 (7.3), EOT 20.6 (8.7) <math>F(1,30) = 2.1, p = 0.16</math></p> <p><b>Negative Mood Regulation Scale (NMR) mean scores (SD):</b> DBT-ST: Baseline 99.8 (15.2), EOT 110.1 (16.8) WL: Baseline 101.4 (15.7), EOT 104.1 (17.0) <math>F(1,30) = 3.0, p = 0.09</math></p> <p><b>Depression</b> <b>Beck Depression Inventory (BDI) mean scores (SD):</b> DBT-ST: Baseline 12.8 (7.4), EOT 9.9 (10.0) WL: Baseline 13.8 (9.1), EOT 12.8 (8.3) <math>F(1,27) = 0.57, p = 0.46</math> <i>Cutoff score 10, signifying an absence of clinically significant symptoms</i> <i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p>
<b>Comments</b>	
<b>Klein 2013 [52], USA, RCT</b>	
<b>Setting</b>	Some concerns
<b>Recruitment</b>	Clinical referrals
<b>Population</b>	Women with full- or sub-threshold variants of either binge eating disorder (69 %) or bulimia nervosa (31 %). Mean age about 35 years.
<b>Exclusion criteria</b>	BPD and a body mass index <18.5
<b>Follow up</b>	EOT
<b>Intervention</b>	Treatment: 16-week group-based DBT Participants (22) Drop-outs (14)
<b>Comparison</b>	Treatment: 16-week diary card self-monitoring with brief individual sessions Participants (14) Drop-outs (2)
<b>Outcomes</b>	Binge Eating (weekly binge eating frequency) mean (SD) Intervention: pre 1.96 (1.26), last week 0, $d=3.11$ Comparison: pre 3.54 (2.25), last week 1.64 (1.62), $d=1.32$  Purging (weekly frequency of self-induced vomiting) mean (SD) Intervention: pre 3.83, (2.84), last week 1.67, (2.89) Comparison: pre 1 (0) last week 0
<b>Comments</b>	
<b>Chen 2017 [53], USA, RCT</b>	
<b>Risk of bias</b>	Some concerns

<b>Setting</b>	Hospital outpatient adult eating disorders program
<b>Recruitment</b>	
<b>Population</b>	Adult women. Mean (SD) age 38 (13) years. 61 % with binge-eating disorder (BED) and 39 % with bulimia nervosa (BN).
<b>Exclusion criteria</b>	Current bipolar disorder or psychosis, use of appetite suppressants, past bariatric surgery, current eating-disorder treatment, pregnancy.
<b>Follow up</b>	12 months after EOT
<b>Intervention</b>	6 months DBT Participants (36) Drop-outs (8) Analysed at EOT (36) Analysed at follow-up (36)
<b>Comparison</b>	6 months individual and additional group cognitive behavior therapy (CBT+) Participants (31) Drop-outs (9) Analysed at EOT (31) Analysed at follow-up (31)
<b>Outcomes</b>	<p><b>Binge eating episodes</b></p> <p><b>Objective binge-day frequency (assessed in the last month), mean (SD):</b> DBT: Baseline (after GSH): 11.86 (7.40), EOT 4.31 (7.00), follow-up 4.61 (7.21) CBT+: Baseline (after GSH) 10.84 (6.46), EOT 4.55 (7.06), follow-up 6.18 (6.59)</p> <p><b>Objective binge-episode frequency (assessed in the last month), mean (SD):</b> DBT: Baseline (after GSH) 15.31 (11.71), EOT 6.53 (16.42), follow-up 6.00 (12.09) CBT+: Baseline (after GSH) 14.81 (12.24), EOT 5.00 (8.09), follow-up 6.18 (6.59)</p> <p><i>For mean objective binge-eating day or episode frequency to be within the non-clinical range for BED or BN: &lt;8 mean objective binges per month (DSM-IV-TR) (APA, 2000).</i></p> <p><b>Vomiting episode frequency (assessed in the last month), mean (SD):</b> DBT: Baseline (after GSH) 8.44 (18.98), EOT 2.44 (9.73), follow-up 6.46 (15.48) CBT+: Baseline (after GSH) 9.87 (21.59), EOT 7.90 (25.84), follow-up 4.36 (8.82)</p> <p><i>For mean vomiting frequency to be within the non-clinical range for BN (DSM-IV-TR) (APA, 2000) mean &lt; 8 vomiting episodes/month.</i></p> <p><b>ED-specific psychopathology</b></p> <p><b>Eating Disorders Examination Questionnaire (EDE-Q) total score (assessed in the last month), mean (SD):</b> DBT: Baseline (after GSH) 2.94 (1.18), EOT 1.77 (1.08), follow-up 2.15 (0.92) CBT+: Baseline (after GSH) 2.62 (1.20), EOT 1.86 (1.04), follow-up 2.36 (1.46)</p> <p><i>EDE range 0-6, higher numbers equal a more disordered eating behaviour. For total Eating Disorders Examination (EDE) scores to be within the non-clinical range mean &lt; 2.45. (2 S.D. cut-off for a healthy sample of N = 337, Fairburn &amp; Wilson 1993).</i></p> <p><b>Psychosocial functioning</b></p> <p><b>Global assessment of functioning (assessed in the last month), mean (SD):</b></p>

	<p>DBT: Baseline (after GSH) 56.00 (9.46), EOT 60.53 (8.68), 6 months follow-up: 62.16 (8.33), 12 months follow-up: NO DATA  CBT+: Baseline (after GSH) 58.55 (11.34), EOT 64.94 (11.05), 6 months follow-up: 65.85 (12.46), 12 months follow-up: NO DATA</p> <p><i>Higher score equals better function. Global assessment of functioning scores of 51–60 refer to moderate impairment; 61–70, mild impairment; and 71–80, slight impairment.</i></p>
<b>Comments</b>	
<b>Safer 2010 [54], USA, RCT</b>	
<b>Risk of bias</b>	Low
<b>Setting</b>	Outpatient
<b>Recruitment</b>	Newspaper advertisements, flyers, and clinic referrals for “treatment for binge eating.”
<b>Population</b>	Adults with BED. Mean (SD) age 52 (10.6) years. 85 % females.
<b>Exclusion criteria</b>	BMI less than 17.5 kg/m <sup>2</sup> , concurrent psychotherapy treatment, unstable dosage of psychotropic medications over the 3 months prior to initial assessment, regular use of purging or other compensatory behaviors over the past 6 months, psychosis, current alcohol/drug abuse or dependence, severe depression with recent suicidality, current use of weight altering medications, severe medical condition affecting weight or appetite, current pregnancy or breast feeding, imminently planning or undergoing gastric bypass surgery.
<b>Follow up</b>	12 months after EOT
<b>Intervention</b>	<p>21-week Dialectical Behavior Therapy Skills training for Binge Eating Disorder (DBT-BED skills training)  Participants (50)  Drop-outs from treatment (2)  Assessed at EOT (50)  Lost to follow-up (1)  Assessed at follow up (49)</p>
<b>Comparison</b>	<p>21-week Active comparison group therapy (ACGT)  Participants (51)  Drop-outs from treatment (17)  Assessed at EOT (48)  Lost to follow-up (9)  Assessed at follow up (39)</p>
<b>Outcomes</b>	<p><b><i>Binge eating episodes</i></b>  <b>Number of participants with at least one binge day during the last month:</b>  DBT: Baseline no data, EOT 18/50, follow-up 18/50  ACGT: Baseline no data, EOT 34/51, follow-up 25/51  <b>Objective binge-day frequency (assessed in the last 28 days), mean:</b>  DBT: Baseline 16.0, EOT 1.5, follow-up 2.9  ACGT: Baseline 16.0, EOT 4.5, follow-up 3.1  <i>P= 0.001 at EOT. At follow up N.S between group. Data from figure 3. At follow-up, SD estimated to same value as mean score in control group.</i></p> <p><b><i>ED-specific psychopathology</i></b>  <b>Eating Disorders Examination (EDE) mean score (SD):</b>  <i>Restraint</i>  DBT Baseline, EOT, follow-up: 1.73 (1.12) 1.29 (1.04) 1.10 (1.09)  ACGT Baseline, EOT, follow-up: 2.00 (1.28) 1.91 (1.23) 1.85 (1.42)  <i>Weight concerns</i>  DBT Baseline, EOT, follow-up: 3.70 (1.02) 2.53 (1.18) 2.27 (1.24)  ACGT Baseline, EOT, follow-up: 3.76 (1.05) 3.00 (1.25) 2.78 (1.31)  <i>Shape Concerns</i>  DBT Baseline, EOT, follow-up: 3.91 (1.22) 2.62 (1.15) 2.50 (1.39)</p>

	<p>ACGT Baseline, EOT, follow-up: 3.97 (0.91) 3.03 (1.35) 2.66 (1.30)</p> <p><i>Eating Concerns</i></p> <p>DBT Baseline, EOT, follow-up: 2.25 (1.43) 0.54 (0.71) 0.88 (1.38)</p> <p>ACGT Baseline, EOT, follow-up: 2.09 (1.32) 1.14 (1.39) 0.66 (0.95)</p> <p><b>Rosenberg Self-Esteem Scale (RSE) mean score (SD):</b></p> <p>DBT Baseline, EOT, follow-up: 25.72 (6.62) 30.28 (6.78) 29.42 (7.66)</p> <p>ACGT Baseline, EOT, follow-up: 27.31 (5.59) 29.82 (5.80) 30.59 (6.15)</p> <p><b>Depression</b></p> <p><b>Beck Depression Inventory (BDI) mean score (SD):</b></p> <p>DBT Baseline, EOT, follow-up: 17.94 (9.37) 9.10 (9.21) 10.36 (9.97)</p> <p>ACGT Baseline, EOT, follow-up: 15.27 (6.83) 10.84 (6.86) 10.04 (7.84)</p> <p><i>Cutoff score 10, signifying an absence of clinically significant symptoms</i></p> <p><i>Reliable change 7 points. Cut-off for severe depression, BDI score below 29.</i></p> <p><b>Emotion regulation</b></p> <p><b>Difficulties in Emotion Regulation Scale (DERS), mean scores (SD):</b></p> <p>DBT Baseline, EOT, follow-up: 98.24 (20.80) 75.58 (23.91) 77.17 (29.22)</p> <p>ACGT Baseline, EOT, follow-up: 94.08 (19.05) 75.94 (21.04) 71.7 (22.35)</p> <p><i>36 questions. Responses from 1 to 5 on a Likert scale. Higher scores show more difficulties in emotion regulation.</i></p> <p><b>Emotional Eating Scale (EES) mean scores (SD):</b></p> <p><i>Anger</i></p> <p>DBT Baseline, EOT, follow-up: 2.57 (0.95) 1.83 (0.98) 1.93 (0.97)</p> <p>ACGT Baseline, EOT, follow-up: 2.61 (0.73) 2.06 (1.05) 1.90 (0.96)</p> <p><i>Anxiety</i></p> <p>DBT Baseline, EOT, follow-up: 2.21 (0.86) 1.51 (0.87) 1.67 (0.90)</p> <p>ACGT Baseline, EOT, follow-up: 2.36 (0.78) 1.81 (0.89) 1.67 (0.89)</p> <p><i>Depression</i></p> <p>DBT Baseline, EOT, follow-up: 2.73 (0.90) 2.06 (0.99) 2.12 (0.92)</p> <p>ACGT Baseline, EOT, follow-up: 2.98 (0.64) 2.43 (0.80) 2.18 (0.89)</p> <p><b>Positive and Negative Affect Scale (PANAS) mean scores (SD):</b></p> <p><i>Positive</i></p> <p>DBT Baseline, EOT, follow-up: 25.04 (8.35) 30.24 (10.34) 30.00 (10.36)</p> <p>ACGT Baseline, EOT, follow-up: 27.16 (6.91) 30.41 (6.97) 30.43 (8.48)</p> <p><i>Negative</i></p> <p>DBT Baseline, EOT, follow-up: 26.08 (9.45) 21.26 (8.01) 22.82 (10.28)</p> <p>ACGT Baseline, EOT, follow-up: 24.82 (7.94) 20.45 (6.58) 19.51 (7.72)</p> <p><b>Negative Mood Regulation Scale (NMR) mean scores (SD):</b></p> <p>DBT Baseline, EOT, follow-up: 98.86 (19.24) 99.54 (16.67) 108.40 (19.72)</p> <p>ACGT Baseline, EOT, follow-up: 100.31 (16.26) 99.71 (13.35) 110.12 (13.61)</p>
Comments	
<b>Adolescents with BED/BN receiving MBT</b>	
No studies included	
<b>Adults with BED/BN receiving MBT</b>	
No studies included	

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