



Citation for published version:

Stewart, NAJ, Wilkinson-Tough, M & Chambers, GN 2019, 'Psychological interventions for individuals with a diagnosis of borderline personality disorder in forensic settings: A systematic review', *Journal of Forensic Psychiatry and Psychology*, vol. 30, no. 5, pp. 744-793. <https://doi.org/10.1080/14789949.2019.1637917>

DOI:

[10.1080/14789949.2019.1637917](https://doi.org/10.1080/14789949.2019.1637917)

Publication date:

2019

Document Version

Peer reviewed version

[Link to publication](#)

This is an Accepted Manuscript of an article published by Taylor & Francis in The Journal of Forensic Psychiatry & Psychology on 21/07/2019 available online: <http://www.tandfonline.com/10.1080/14789949.2019.1637917>

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Submission to The Journal of Forensic Psychiatry & Psychology

Title:

**Psychological interventions for individuals with a diagnosis of Borderline Personality
Disorder in forensic settings: A systematic review**

TABLES

Table 1. Summary of inclusion and exclusion criteria for systematic review

	Inclusion	Exclusion
POPULATION:	<p>The study is conducted within a forensic setting (mental health or non-mental health; inpatient or outpatient)</p> <p>Study participants receiving the intervention must meet <u>one</u> of the following two criteria:</p> <p>A. Diagnosis of BPD, either formal (i.e., confirmed by diagnostic interview) or informal (reported as a clinical diagnosis but unconfirmed), with or without comorbid Axis 1 or 2 disorders</p> <p>B. Diagnosis of personality disorder or mixed personality disorder (either formal or informal, as above), provided that:</p> <ul style="list-style-type: none"> • At least some of the study participants have a diagnosis of BPD, <u>and</u> • The treatment under investigation was developed for BPD (e.g., DBT, MBT, etc.) 	<p>The study is not conducted within a forensic setting</p> <p>Participants do not have a formal or informal diagnosis of personality disorder (even if the study focused on BPD-type symptoms)</p> <p>Studies whose stated focus is a specific type of personality disorder other than BPD (e.g., ASPD or psychopathy)</p> <p>Participants have a learning disability</p>
STUDY DESIGN:	<p>The treatment modality is either individual or group psychotherapy</p> <p>Interventional studies that include pre- and post-outcome data on one or more measures relevant to BPD</p> <p>Studies published from 1980 onwards</p> <p>Articles published in English</p>	<p>Holistic service models</p> <p>Psychological interventions provided to staff rather than service users</p> <p>Qualitative research, single case studies and case series</p> <p>Papers published prior to 1980</p> <p>Articles not published in English</p>

Table 2. Study Characteristics

Study; Location	Setting	Participant Characteristics			Intervention			Study Design	Outcome Measures
	Description	N; Features (including offending history)	Age M (SD); Gender	Diagnostic Criteria	Type	Modality	Description		<ol style="list-style-type: none"> 1. BPD symptom-related 2. Behaviour-related 3. Offence-related (including risk) 4. Mood & Overall Improvement
Bernstein et al. (2012) <i>Preliminary findings;</i> Netherlands	7 TBS forensic psychiatric hospitals	30 (16 intervention, 14 TAU) 90% received TBS sentences for violent offences Mean PCL-R total score: 25.4 (SD 6.9). 18/30 patients (60%) had PCL-R scores higher than cut-off of 25	41.3 (8.5) All male	DSM-IV diagnosis of PD (assessed using SIDP-IV) 30% BPD (10% solely BPD; 20% BPD + ASPD) 86.7% ASPD 33.3% NPD 3.3% PPD	ST	Individual	2x individual therapy sessions per week (often reducing to x1 session/week in third year)	Multicentre randomised controlled trial vs TAU (i.e., 1x individual therapy session, e.g., CBT, psycho-dynamic therapy, client-centred therapy, per week) Both intervention and TAU groups also received ancillary treatments, e.g., group therapy, arts therapies	<ol style="list-style-type: none"> 1. SIDP-IV; SNAP-I (patient & informant); YSQ; SMI 2. Resocialisation (i.e., supervised and unsupervised leave); Institutional violence (i.e., aggression and other incidents) 3. Recidivism (using Ministry of Justice records); HCR-20; SVR-20 4. START; SCL-90; Global therapy outcome

							3-year trial and 3-year follow-up	(classified by researchers)	
<p>Black et al. (2008) <i>Preliminary results, incorporated within Black et al. (2013)</i></p> <p>Black et al. (2013) <i>Full results</i></p> <p>Black et al. (2015) <i>Re-analysis of data to examine effect of co-morbid ASPD;</i></p> <p>USA</p>	Prison & community corrections	<p><u>2013:</u> 77 (67 prison, 10 community)</p> <p>No. previous convictions: M 5.9 (SD 6.8)</p> <p>Violent act conviction: 22%</p> <p>Time served: M 2.2 years (SD 3.4)</p> <p>Psychopathy not reported</p> <p><u>2015:</u> N = 64 (55 prison, 9 community)</p>	<p><u>2013:</u> 31.4 (8.6) 14 male 63 female</p> <p><u>2015:</u> 30.9 (8.8) 14 male 50 female</p>	DSM-IV criteria for BPD (assessed using SIDP-IV)	STEPPS	Group	<p>20x 2-hour weekly group sessions. Detailed lesson plans used.</p> <p>&</p> <p>1x 2-hour evening session for system members</p>	<p>Single-arm uncontrolled trial.</p> <p>20-week programme. No follow up.</p>	<p>1. BEST</p> <p>2. Suicidal behaviour (= pooled suicidal & self-harm behaviours); Disciplinary infractions</p> <p>3. –</p> <p>4. BDI; PANAS;</p>
Doyle et al. (2016)	High security hospital	63	<p>42.3 (11.3) All male</p>	Primary diagnosis of DSM-IV	ST	Individual	1x weekly 60-minute session for a	Randomised controlled trial vs TAU (i.e.,	1. BIS-II; NAS; CIRCLE; YSQ

<p><i>Full results, peer-reviewed;</i></p> <p>Tarrier et al. (2010) <i>Ministry of Justice report</i></p> <p>UK</p>		<p>(29 intervention, 34 TAU)</p> <p>Number of past convictions: M 7.4 (SD 6.42)</p> <p>Length of stay (days): M 4945 (SD 3465)</p> <p>Number of participants violent in past month: 14/63 (22%)</p> <p>39/63 (61.9%) met diagnostic criteria for psychopathy (i.e., PCL-R score higher than 25)</p>	<p>Axis II disorder (assessed using SCID-II)</p> <p>20/63 (32%) had BPD diagnosis</p> <p>43/63 (68.3%) had ASPD diagnosis</p>		<p>minimum of 18 months</p>	<p>specific therapies and various social, occupational, recreational activities)</p> <p>24-month trial with follow-up to 36-months</p>	<ol style="list-style-type: none"> 2. MOAS; VRS; IBRS 3. HCR-20 4. APQ; BPRS;
<p>Evershed et al. (2003);</p> <p>UK</p>	<p>High security hospital</p>	<p>17</p> <p><u>Intervention group (n=8):</u> 35.75 (9.75)</p>	<p><u>Intervention group</u> of personality disorder (all participants recruited)</p>	<p>DBT</p> <p>Individual and Group</p>	<p>18-months of standard DBT with adaptations:</p> <p>Additional treatment</p>	<p>Non-randomised controlled trial vs non-contemporaneous TAU (i.e., CBT, sex offender and</p>	<ol style="list-style-type: none"> 1. STAXI; NAS; BDHI-D 2. Violence behaviours (frequency and seriousness); 3. –

		<p>Number of previous offences: M 2.88 (SD 3.64)</p> <p>Years admitted: M 10.0 (SD 9.07)</p> <p><u>TAU group (n=9):</u></p> <p>Number of previous offences: M 6.56 (SD 5.20)</p> <p>Years admitted: M 3.44 (SD 1.51)</p> <p>Psychopathy not reported</p>	<p><u>TAU group (n=9):</u></p> <p>33.89 (7.46)</p> <p>All male</p>	<p>from a personality disorder service)</p> <p>All met criteria for BPD on PAI</p>		<p>targets added (violent behaviour, ideation, urges and emotions)</p> <p>Ward-based skills coaches in place of telephone consultation</p> <p>Materials for skills groups made relevant for male inpatients</p>	<p>substance misuse groups.)</p> <p>18-months of treatment with follow-up to 24-months</p>	4. –
<p>Gee et al. (2016);</p> <p>UK</p>	<p>Women's prison</p>	<p>33</p> <p>94% sentenced prisoners 6% on remand</p>	<p>32 (9.2)</p> <p>All female</p>	<p>DSM-IV criteria for BPD or ASPD (assessed using SCID-II)</p>	<p>Forensically modified DBT (the 'Options' programme)</p> <p>Group and individual</p>	<p>16-week programme</p> <p>Content modified to incorporate</p>	<p>Uncontrolled intervention study</p> <p>16-week programme with</p>	<p>1. BSL; NMR</p> <p>2. Deliberate self-harm incidents; Number of days at active risk of self-harm and suicide</p>

		Index offences: 27% minor violence 25% major violence 21% dishonesty 15% arson 12% criminal damage Psychopathy not reported		BPD: 100% ASPD: 91%			focus on offending 1x 1-hour individual therapy session per week 3 hours group skills training per week Weekly therapist consultation team meeting	follow-up to 32 weeks Programme run in x4 non-contemporaneous rounds	(routinely recorded by the prison); Adjudications regarding proven violence; MOAS 3. – 4. –
Low et al. (2001); UK	High security hospital	10 Length of hospital stay: M 4.5 years (SD 3.0) Psychopathy not reported	28.7 (6.5) All female	DSM-III-R criteria for BPD (assessed using IPDE)	DBT	Group and individual	12 months of therapy, incorporating: 1x weekly group skills training session 1x weekly individual session	Uncontrolled pilot study 12 months of treatment with follow-up to 18 months.	1. DES; RLI; BHS; BSSI; EII 2. Rates of self-harm 3. – 4. IDAS; BDI
Nee & Farman (2005) <i>Phase 1 results</i>	<i>One-year programmes:</i> Closed training prisons for	27 <i>One-year programmes (intervention group): 9</i>	31 (9.7) All female	Diagnosis of BPD (assessed using SCID-II)	DBT	Group and individual	<i>One-year programmes:</i> 1x group-skills training session and 1x	<i>One-year programmes:</i> Non-randomised controlled trial	1. BSI; EII; ECQ; DES; RLI; STAXI 2. Self-harming behaviour;

<p>Nee & Farman (2008) <i>Phase 1 & 2 results</i></p> <p>UK</p>	<p>life-sentenced prisoners</p> <p><i>Short format programmes:</i></p> <p>Local allocation and remand prison</p>	<p><i>One-year programmes (waitlisted control group): 5</i></p> <p><i>Short format (16-week) programmes (uncontrolled): 13</i></p> <p>Number of previous convictions ranged from 0 to 39 (mean not reported).</p> <p>Index offences: Arson (8) Murder (7) Attempted murder (1) Manslaughter (2) Other violent offences (4)</p> <p>Psychopathy not reported</p>	<p>individual therapy session per week for one year (DBT Stage 1 only)</p> <p><i>Short format programmes:</i></p> <p>2x group sessions and 1x individual therapy session per week for 16-weeks (DBT Stage 1 only)</p> <p>Note: Both programmes incorporated 24-hour telephone access for crisis and weekly consultation meetings for therapists</p>	<p>(waitlisted control)</p> <p>12 months of treatment with follow-up to 18 months.</p> <p><i>Short format programmes:</i></p> <p>Uncontrolled trial</p> <p>16 weeks of treatment.</p> <p>Follow-up planned but data not collected, owing to release/transfer of participants</p>	<p>Adjudications data</p> <p>3. Reconviction</p> <p>4. LOCQ; RSEI; Quality of Life</p>
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Santisteban et al. (2015); USA	Juvenile diversion programmes	40 adolescents 65% arrested/detained at police station in previous year 70% referred from juvenile justice system Psychopathy not reported	15.8 (0.8) 25 male 15 female	DSM-IV criteria for BPD (assessed using RDIB) All participants also met criteria for substance use disorder	I-BAFT IDC	Group and individual Individual	7 months of therapy 1 x family therapy session and 1x skills training or individual session per week 7 months of therapy 2x individual sessions per week and 1x family meeting with caregivers per month	Randomised controlled trial 7 months of treatment with follow-up to 12-months	1. BP-MACI; 2. Substance use (TLFB + urine toxicology) 3. – 4. DPS; residential days of treatment
van den Broek et al. (2011); Netherlands	TBS forensic psychiatric hospital for male patients	10 Length of stay: M 38.3 months (SD 8.4) Convictions: 30% murder/attempted murder 10% manslaughter/	40.7 (7.4) All male	Diagnosis of DSM-IV personality disorder (assessed using SIDP-IV) 40% BPD 90% ASPD	ST and Arts therapies (i.e., drama therapy, art therapy and psychomotor therapy)	Individual	12-18 months of therapy <i>ST condition:</i> 2 sessions/ week of psychotherapy & 1 session/ week of Arts therapy <i>TAU Condition:</i>	Randomised controlled pilot study, vs TAU (i.e., 'typically a form of cognitive-behavioural, psychodynamic or humanistic psychotherapy') 4x consecutive therapy sessions	1. MOS 2. – 3. – 4. –

		<p>attempted manslaughter 20% sexual crimes 20% assault 20% property crimes</p> <p>Mean PCL-R total score: 23.8 (SD 7.4).</p> <p>6/10 patients (60%) had PCL-R score higher than cut-off of 25</p>	<p>30% Narcissistic PD</p>		<p>1 session/ week of psychotherapy & 1 session/ week of Arts therapy</p>	<p>videotaped for assessment in each of the 4 treatment conditions, during a 3-month period.</p> <p>Up to 18 months of treatment.</p> <p>No follow-up.</p>	
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Measures: APQ = Anti-social Personality Questionnaire; BDHI = Buss Durkee Hostility Index; BDI = Beck Depression Inventory; BEST = Borderline Evaluation of Severity Over Time; BHS = Beck Hopelessness Scale; BIS-II = Barratt Impulsiveness Scale; BP-MACI = Borderline Personality Scale – Millon Adolescent Clinical Inventory; BPRS = Brief Psychiatric Rating Scale; BSI = Borderline Syndrome Index; BSL = Borderline Symptom List; BSSI = Beck Scale for Suicide Ideation; CALPAS = California Psychotherapy Alliance Scale; CAQ = Custodial Adjustment Questionnaire; CIRCLE = Chart of Interpersonal Reactions in Closed Living Environments; DES = Dissociative Experiences Scale; DPS = Diagnostic Interview Schedule for Children – Predictive Scales (depression measure); ECQ = Emotion Control Questionnaire; EII = Eysenck’s Impulsivity Inventory; GAS = Global Assessment Scale; HCR-20 = Historical Clinical Risk - 20 items; IBRS = Institutional Behaviour Rating Scale; IPDE = International Personality Disorder Examination; IDAS = Irritability, Depression and Anxiety Scale; LOCQ = Locus of Control Questionnaire; MOAS = Modified Overt Aggression Scale; MOS = Mode Observation Scale; NAS = Novaco Anger Scale; NMR = Negative Mood Regulation scale; PAI = Personality Assessment Inventory; PANAS = Positive and Negative Affectivity Scale; PCL-R = Psychopathy Checklist Revised; RDIB: Revised Diagnostic Interview for Borderlines; RLI = Reasons for Living Inventory; RSEI = Rosenberg’s Self-Esteem Inventory; RWCS = Revised Ways of Coping Scale; SCID-II = Structured Clinical Interview for DSM-IV Axis II; SCL-90 = Symptom Checklist-90; SIDP-IV = Structured Interview for DSM-IV Personality; SMI = Schema Mode Inventory; SNAP-I = Schedule for Nonadaptive and Adaptive Personality; START = Short Term Assessment of Risk and Treatability; STAS = State Trait Anxiety Scale; STAXI = State Trait Anger Expression Inventory; SVR-20 = Sexual Violence Risk Assessment; TAS = Toronto Alexithymia Scale; TLFB = Timeline Followback; VRS = Violence Risk Scale; YSQ = Young Schema Questionnaire

Treatments: CBT = Cognitive-Behavioural Therapy; DBT = Dialectical Behaviour Therapy; I-BAFT = Integrative BPD-oriented Adolescent Family Therapy; IDC = Individual Drug Counselling; STEPPS = Systems Training for Emotional Predictability and Problem Solving; ST = Schema therapy; TAU = treatment as usual

Note: ASPD = Antisocial personality disorder; FU = Follow-up; ITT = Intention to Treat; NPD = Narcissistic Personality Disorder; PPD = Paranoid Personality Disorder; TBS = *Ter Beschikking Stelling* (translates as ‘At the disposal of (the Government)’. Specialised institutions for forensic psychiatric care in the Netherlands)

Table 3. Summary of study outcomes

Study	Analysis	Outcomes (all changes in score represent clinical improvement unless otherwise specified.)				Drop Outs (definition; n (%); analysis)
		BPD Symptom-related	Behaviour-related	Offence-related (including risk)	Mood & Overall Improvement	
Bernstein et al. (2012)	BG	<p><u>Measures excluded from preliminary analysis</u></p> <p>SIDP-IV; SNAP-I; YSQ; SMI</p>	<p><u>Non-Significant Findings</u></p> <p>↑proportion of ST patients received supervised and unsupervised leave at each time point compared with TAU. After two years of treatment, 62.5% of ST patients had received supervised leave, compared with 35.7% of TAU patients (p=0.27); in the same time period, 31.3% of ST patients received unsupervised leave, compared with 7.1% of TAU patient (p=0.18).</p> <p>ST patients received leave more rapidly than TAU patients. ST patients who received <i>supervised</i> leave needed 137 fewer days to get supervised leave than TAU patients who received this type of leave (p=0.30). ST patients who received <i>unsupervised</i> leave needed an average of 138 fewer days to receive unsupervised leave than TAU patients (p=0.14)</p> <p><u>Measures excluded from preliminary analysis</u></p> <p>Institutional violence</p>	<p><u>Measures excluded from preliminary analysis</u></p> <p>Recidivism (to be reported when follow-up is completed)</p> <p><u>Non-Significant Findings</u></p> <p>HCR-20 total scores appeared to improve more rapidly in ST patients than in TAU patients (p=ns)</p> <p><u>Measures excluded from preliminary analysis</u></p> <p>SVR-20</p>	<p><u>Measures excluded from preliminary analysis</u></p> <p>ST patients showed fewer overall negative global therapy outcomes (18.8%) than TAU patients (35.7%) over the 3 years of therapy (p=0.3)</p> <p><u>Measures excluded from preliminary analysis</u></p> <p>START; SCL-90</p>	<p>Terminating treatment (transferred to other clinics, worsening of psychiatric condition, recidivism, lack of cooperation with the research)</p> <p>8/30 (26.6%)</p> <p>Dropouts not included in analysis</p>

Study	Analysis	Outcomes (all changes in score represent clinical improvement unless otherwise specified.)				Drop Outs (definition; n (%); analysis)
		BPD Symptom-related	Behaviour-related	Offence-related (including risk)	Mood & Overall Improvement	
<p>Black et al. (2008) <i>Preliminary results, incorporated within Black et al. (2013)</i></p> <p>Black et al. (2013) <i>Full results</i></p> <p>Black et al. (2015) <i>Re-analysis of data to examine effect of co-morbid ASPD;</i></p>	<p>WG</p> <p>BG (Black et al., 2015)</p>	<p><u>2013:</u></p> <p>↓BEST Total*** pre, 34.3; post, 19.5, F=78.1, p<0.001; d=1.3</p> <p><u>2015:</u></p> <p>↑ Greater improvement in BPD+ASPD group vs BPD alone group on BEST Negative Behaviours* (F=4.8 (1, 154), p=0.030, ES = -0.55), BEST Positive Behaviours** (F=8.5 (1, 154), p=0.004, ES = 1.22) and BEST Total* (F=4.7 (1, 154), p=0.032, ES = -0.74)</p> <p><u>Non-Significant Findings</u></p> <p>BEST Thoughts/Feelings</p>	<p><u>2013:</u></p> <p>↓Suicidal behaviour* pre, 0.14; post, 0.05, t= -2.22, p=0.029</p> <p>↓Disciplinary infractions* pre, 0.26; post, 0.17, t=-2.06, p=0.043</p>	N/A	<p><u>2013:</u></p> <p>↓BDI*** pre, 25.5; post, 10.6, F=85.7, p<0.001; d=1.08</p> <p>↓PANAS Negative affectivity*** pre, 27.6; post, 20.5, F=23.8, p<0.001; d=0.69</p> <p><u>Non-Significant Findings</u> PANAS Positive affectivity</p> <p><u>2015:</u></p> <p>↑ Greater improvement in BPD+ASPD group vs BDP alone group on PANAS Positive Affectivity** (F=7.5 (1, 147), p=0.007, ES = 0.89)</p> <p><u>Non-Significant Findings</u> PANAS Negative Affectivity, BDI</p>	<p><u>2013:</u></p> <p>Not completing the programme</p> <p>36/77 (47%)</p> <p>Dropouts included in analysis</p> <p><u>2015:</u></p> <p>31/64 (48%)</p> <p>Dropouts included in analysis (assumed, though not explicitly mentioned)</p>

Study	Analysis	Outcomes (all changes in score represent clinical improvement unless otherwise specified.)				Drop Outs (definition; n (%); analysis)
		BPD Symptom-related	Behaviour-related	Offence-related (including risk)	Mood & Overall Improvement	
Doyle et al. (2016) <i>Full results, peer-reviewed;</i> Tarrier et al. (2010) <i>Ministry of Justice report</i>	BG	<p>↑YSQ defectiveness/shame schema** estimated treatment effect (i.e., mean outcome for TAU minus mean outcome for ST+TAU) at 24 months = -2.47 (i.e., an increase), SE = .93, p=0.008</p> <p><u>Non-Significant Findings</u> BIS Total NAS Total CIRCLE (8 subscales) YSQ (15 subscales)</p>	<p>VRS Dynamic Total* estimated treatment effect (i.e., mean outcome for TAU minus mean outcome for ST + TAU) at 24 months = -3.43 (i.e., a reduction in risk), SE = 1.65, p=0.038</p> <p><u>Results and/or statistics not reported:</u> IBRS MOAS</p>	<p><u>Non-Significant Findings</u> HCR-20 (3 subscales)</p>	<p><u>Non-Significant Findings</u> APQ (10 subscales) BPRS Total</p>	<p>Withdrew from study (n=5, 7.9%), transferred from research site (n=28, 44.4%)</p> <p>Dropouts included in analysis (ITT)</p>

Evershed et al. (2003)	BG & WG	<p>↓ STAXI trait* vs TAU, pre, 18.63; FU, 16.13, ES=.43, F=3.18, p=0.048 (interaction)</p> <p>↓ STAXI anger out* vs TAU, pre, 15.75; FU, 14.5, ES=.23, F=3.97, p=0.043 (interaction)</p> <p>↓ NAS cognitive** vs TAU, pre, 32.00; FU, 28.13, ES= .79, F=6.64, p=0.009 (interaction)</p> <p>↓ BDHI covert* vs TAU, pre, 11.00; FU, 7.50, ES .59, F=5.22, p=0.020 (interaction)</p> <p>↓ BDHI overt* vs TAU, pre, 9.63; FU, 7.25, ES .69, F=5.18, p=0.021 (interaction)</p> <p><u>Trends towards significance</u> ↓ STAXI anger expression vs TAU, pre, 28.50; FU, 21.38, ES=.60, F=3.55, p=0.057 (interaction)</p> <p><u>Non-Significant Findings</u> STAXI (4 subscales) NAS (3 subscales)</p>	<p>↓ Seriousness of violence-related behaviours*** vs TAU, pre, 2.82; post, 1.33, F=8.05, p=0.00 (interaction)</p> <p><u>Non-Significant Findings</u> Frequency of violence-related behaviours vs TAU</p>	N/A	N/A	<p>Not completing the programme</p> <p>Intervention group: 1/9 (11%)</p> <p>TAU: Not provided</p> <p>Dropouts not included in analysis</p>
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Study	Analysis	Outcomes (all changes in score represent clinical improvement unless otherwise specified.)				Drop Outs (definition; n (%); analysis)
		BPD Symptom-related	Behaviour-related	Offence-related (including risk)	Mood & Overall Improvement	
Gee et al. (2016)	WG	<p>↓ BSL** pre, 50.0; post, 28.0; FU, 12.4, t=3.7, p=0.001 (pre to post treatment); t=3.3, p=0.004 (post treatment to follow up)</p> <p>↑ NMR** pre, 83.6; post, 97.0, t=3.9, p=0.001</p> <p><u>Non-Significant Findings</u></p> <p>NMR from post treatment to follow-up</p>	<p>↓ Frequency of deliberate self-harm incidents** pre, 3.5; post, 0.1, z= 2.9, p=0.003</p> <p>↓ Number of days at active risk of self-harm and suicide** pre, 8.1; post, 0.7, z=3.0, p=0.003</p> <p>↓ MOAS*** pre, 17.4; post, 3.6; FU, 1.6, z=3.5, p<0.001 (pre to post treatment); z=2.1, p=0.032 (post treatment to follow up)</p> <p><u>Non-Significant Findings</u></p> <p>Frequency of deliberate self-harm incidents from post treatment to follow-up</p> <p>Number of days at active risk of self-harm and suicide from post treatment to follow-up</p> <p>Adjudication data</p>	N/A	N/A	<p>Not completing the programme (transferred to another prison or different therapy, excluded from programme for missing >2 unexcused sessions)</p> <p>7/33 (21.2%)</p> <p>Dropouts not included in analysis</p>

Study	Analysis	Outcomes (all changes in score represent clinical improvement unless otherwise specified.)				Drop Outs (definition; n (%); analysis)
		BPD Symptom-related	Behaviour-related	Offence-related (including risk)	Mood & Overall Improvement	
Low et al. (2001)	<p>↓ DES** pre, 46.4; FU, 29.6, p<0.01</p> <p>↑ RLI Coping Beliefs subscale* pre, 2.1; FU, 4.3, p=0.01</p> <p>↓ BSSI** pre, 13.5; end of treatment, 3.8, p < 0.01</p> <p><u>Trends towards significance</u></p> <p>↓ EII pre, 15.3; 8 months into treatment, 12.2, p=0.05</p> <p><u>Non-Significant Findings</u></p> <p>BHS</p> <p>RLI (5 subscales)</p>	<p>Rates of self-harm* for the second, third and fourth quarters of treatment were all significantly lower than pre-treatment rates (all p<0.05, numerical rates not provided). Rates of self-harm** for the second half of the 6-month follow-up period were significantly lower than pre-treatment rates (p<0.01)</p> <p>[All 10 patients showed a reduction in self-harm between pre-treatment and the final follow-up period.]</p> <p><u>Non-Significant Findings</u></p> <p>Rates of self-harm between pre-treatment and the first quarter of treatment, and between pre-treatment and the first half of the 6-month follow-up period.</p>	N/A	<p>↓ IDAS-Depression subscale* pre, 7.2; 8 months into treatment, 4.3, p<0.05</p> <p>↓ BDI* pre, 26.0, 8 months into treatment, 15.4, p<0.05)</p> <p><u>Non-Significant Findings</u></p> <p>IDAS (3 subscales)</p>	<p>Not completing a full year of therapy and follow-up</p> <p>3 of the 13 participants initially recruited (23%)</p> <p>Dropouts not included in analysis</p>	

<p>Nee & Farman (2005) <i>Phase 1 results</i></p> <p>Nee & Farman (2008) <i>Phase 1 & 2 results</i></p>	<p>WG and BG</p>	<p><i>One-year programmes:</i></p> <p>↓BSI** pre 29.00; FU, 14.33, F(3,24)=6.98, p=0.002, ES=0.47</p> <p>↓EII** pre, 12.56; FU, 6.11, F(3,24)=6.29, p=0.003, ES=0.44</p> <p><u>Trend towards significance:</u></p> <p>↓STAXI pre, 38.67; FU, 29.33, F(3,24)=2.67, p=0.070, ES=0.25</p> <p>2x ECQ subscales: Rehearsal, (<i>scores unreported</i>) F(3,24)=2.93, p=0.054, $\eta^2=0.27$ Benign control, (<i>scores unreported</i>) F(3,24)=2.24, p=0.091, $\eta^2=0.23$</p> <p>RLI Survival and Coping Beliefs subscale, (<i>scores unreported</i>) F(3,21)=4.11, p=0.063, $\eta^2=0.37$</p> <p><u>Unreported:</u> ECQ (2 subscales) RLI (5 subscales) Suicidal ideation</p> <p>Mixed factorial ANOVAs comparing DBT participants with controls indicated no significant differences</p>	<p><i>One-year programmes:</i></p> <p>Self-harming behaviour: No statistical analysis is reported. The authors interpret the data to indicate, ‘to some extent’, a general downturn in self-harm for the DBT participants, with an upturn towards the end and during the follow-up period. However, the authors acknowledge that the aggregate data on self-harm are misleading, being skewed by participants who experienced acute episodes of self-harm.</p> <p><u>Unreported:</u></p> <p>Adjudications data (the authors note that too few were recorded to detect a clear pattern)</p> <p><i>16-week programmes</i></p> <p>Self-harming behaviour: No statistical analysis is reported. The authors noted a reduction in the frequency of self-harm incidents from pre-DBT to during the programme (during which ‘almost no incidents’ were recorded). Lethality also reduced, with the most lethal incident rated 9 pre-DBT (death highly probable) falling to 5 during DBT (death 50:50).</p>	<p><i>One-year and 16-week programmes:</i></p> <p><u>Unreported:</u></p> <p>Reconviction.</p> <p>Note: <i>The authors state that reconviction statistics are unlikely to become available, owing to the very long sentences served by the majority of participants</i></p>	<p><i>One-year programmes:</i></p> <p>↑LOCQ** pre, 39; FU, 50.22, F(3,24)=7.96, p=0.005, ES=0.50</p> <p>↑RSEI* pre, 19.89; post, 27.56, F(3,24)=4.57, p=0.011, ES=0.36</p> <p><u>Unreported:</u> Quality of Life</p> <p>Mixed factorial ANOVAs comparing DBT participants with controls indicated no significant differences between the groups on any test.</p> <p><i>16-week programmes</i></p> <p>Statistically significant improvements are reported for the following measures (<i>scores unreported</i>).</p> <p>LOCQ*, t(13)=-2.313, p=0.039</p> <p>RSEI**, t(12)=-3.796, p=0.003</p> <p>CAQ – Distress Scale**, t(13)=3.702, p=0.003</p>	<p>Not completing the programme, or transferred from research site</p> <p>Phase 1: 14/30 (46.6%)</p> <p>Phase 2: 1/17 (5.8%) dropped out voluntarily. Transfers not reported.</p> <p>Control group: 7/12 (58.3%)</p> <p>Dropouts not included in analysis</p>
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		<p>between the groups on any test.</p> <p><i>16-week programmes</i></p> <p>Statistically significant improvements are reported for the following measures (<i>scores unreported</i>).</p> <p>BSI, $t(13)=2.320$ $p=0.039$</p> <p>DES, $t(13)=3.363$ $p=0.006$</p> <p>EII, $t(13)=3.255$ $p=0.007$</p> <p>RLI – Survival & Coping Beliefs Scale, $t(12)=-3.051$ $p=0.011$</p> <p>RLI – Moral Objections Scale, $t(12)=-2.238$ $p=0.047$</p> <p><u>Trends approaching significance</u></p> <p>Improvements are reported for the following measures (<i>scores unreported</i>).</p> <p>ECQ – Emotional Inhibition Scale, $t(13)=2.140$ $p=0.054$</p>				
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Study	Analysis	Outcomes <i>(all changes in score represent clinical improvement unless otherwise specified.)</i>				Drop Outs (definition; n (%); analysis)
		BPD Symptom-related	Behaviour-related	Offence-related (including risk)	Mood & Overall Improvement	
		ECQ – Benign Control Scale, t(13)=-1.897 p=0.082 Personal Feelings Questionnaire – Shame Scale, t(12)=1.867 p=0.089 <u>Unreported:</u> ECQ (2 subscales) RLI (4 subscales)				

Study	Analysis	Outcomes (all changes in score represent clinical improvement unless otherwise specified.)				Drop Outs (definition; n (%); analysis)
		BPD Symptom-related	Behaviour-related	Offence-related (including risk)	Mood & Overall Improvement	
Santisteban et al. (2015)	WG & BG	<p><u>Non-significant findings</u></p> <p>↓ BP-MACI. 62% in IDC group and 76% in I-BAFT improved or recovered¹ (difference between groups was non-significant, p=0.683)</p> <p>Non-depressed adolescents in I-BAFT had greater odds (OR = 1.58) of recovering or improving compared with IDC.</p> <p>Depressed adolescents in I-BAFT had greater odds (OR = 5.72) of recovering or improving compared with IDC.</p>	<p><u>Non-significant findings</u></p> <p>↓ Substance use. 23% in IDC group and 38% in I-BAFT improved or recovered² (difference between groups was non-significant, p=0.115)</p> <p>Non-depressed adolescents in I-BAFT had smaller odds (OR = 0.78) of recovering or improving compared with IDC.</p> <p>Depressed adolescents in I-BAFT had greater odds (OR = 11.38) of recovering or improving compared with IDC.</p>	N/A	<p>Intervention condition interacted significantly with comorbid depression**, B=-2.13, SE=0.72, p=0.003, 95% CI [-3.55, -0.71]. In I-BAFT, there was a small difference (Cohen's d=0.14) in residential days between nondepressed (M=20.50, SD=64.68) and depressed youths (M=28.00, SD=41.16). In IDC, there was a large difference (Cohen's d=0.75) in residential days between nondepressed (M =3.54, SD=10.21) and depressed youths (M=40.71, SD=69.55).</p> <p><u>Non-significant findings</u></p> <p>Overall, unplanned residential days of treatment was not related to intervention condition (p=0.473)</p>	<p>Not completing the programme, moved, in jail, in residential, not contactable</p> <p>13/40 (32.5%)</p> <p>Dropouts included in analysis</p>

¹ Improved = clinically significant improvement in behaviour from baseline to 12 months but functioning in the 'impaired' range at 12 months; Recovered = clinically significant improvement in behaviour from baseline to 12 months and functioning in the 'normal' range at 12 months.

² Improved = participants with decreased use but not abstinence at follow-up; Recovered = participants reporting decreased use (moving to a category representing less use), with a negative urine screen and self-reported abstinence at the last follow-up.

Van den Broek et al. (2011)	WG & BG	<p>↑ MOS Healthy modes* in the Arts therapy condition vs psychotherapy condition, $T=7.00$, $z=-2.09$, $p=0.04$, $d=.80$</p> <p>↑ MOS Overcompensatory modes* in psychotherapy sessions for TAU, and in Arts therapy sessions for ST (interaction, $U=1.00$, $p=0.02$, $d=-1.67$)</p> <p><u>Trends approaching significance</u></p> <p>↑ MOS Child modes in the ST condition vs TAU, $Z=-1.71$, $p=0.09$, $d=1.55$</p> <p>↑ MOS Avoidant/Compliant modes in verbal psychotherapy condition vs Arts therapy condition (interaction, $U=3.00$, $p=0.054$, $d=1.77$)</p> <p><u>Non-Significant Findings</u></p> <p><i>ST vs TAU:</i> Avoidant/compliant modes Parent modes Overcompensatory modes</p>	N/A	N/A	N/A	Not defined None
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Study	Analysis	Outcomes (all changes in score represent clinical improvement unless otherwise specified.)				Drop Outs (definition; n (%); analysis)
		BPD Symptom-related	Behaviour-related	Offence-related (including risk)	Mood & Overall Improvement	
		Healthy modes <i>Psychotherapy vs Arts therapy:</i> Child modes Avoidant/compliant modes Parent modes Overcompensatory modes <i>ST/TAU vs psychotherapy/Arts therapy:</i> Child modes Parent modes Healthy modes				

Notes:

↑↓ direction of change in outcome measure;

WG = within groups;

BG = between groups

Levels of statistical significance: *= $p < 0.05$, **= $p < 0.01$, ***= $p < 0.001$

Effect sizes are only reported if they are reported in the original paper.

