

Table DS1 Characteristics of included randomised comparisons

| Active drug | Study | Mean dose | Duration, weeks | Participants, <i>n</i> | | Setting | Study estimates | | | |
|----------------------------------|-----------------------------------|---------------------------------------|-----------------|------------------------|-----------------|--------------------|-----------------|----------------------|--------------|----------------|
| | | | | Women | Men | | Core symptoms | Associated pathology | Tolerability | Adverse events |
| <i>Active drug v. placebo</i> | | | | | | | | | | |
| First-generation antipsychotics | | | | | | | | | | |
| Flupentixol decanoate i.m. | Montgomery (1979) ³⁰ | 20 mg per 4 weeks | 24 | 21 | 9 | OP | • | | • | |
| Haloperidol | Soloff (1989) ³⁹ | 4.8 mg/day | 5 | 68 ^a | 22 ^a | IP/OP ^b | • | • | • | |
| | Soloff (1993) ⁴⁰ | 3.9 mg/day | 5 | 82 ^a | 26 ^a | IP/OP ^b | • | • | • | • |
| Thiothixene | Goldberg (1986) ²³ | 8.7 mg/day | 12 | 29 | 21 | OP | • | • | • | • |
| Second-generation antipsychotics | | | | | | | | | | |
| Aripiprazole | Nickel (2006) ³³ | 15 mg/day | 8 | 43 | 9 | OP | • | • | | |
| Olanzapine | Bogenschutz (2004) ¹⁸ | 6.9 mg/day | 12 | 25 | 15 | OP | • | | • | • |
| | Eli Lilly (2000a) ²¹ | 7.1 mg/day ^c | 12 | 223 | 91 | OP | • | • | • | • |
| | Eli Lilly (2007b) ²⁰ | 6.7 mg/day ^c | 24 | 223 | 78 | OP | • | • | • | • |
| | Linehan (2008) ²⁸ | 4.5 mg/day ^d | 24 | 24 | 0 | OP | • | • | • | • |
| | Soler (2005) ³⁹ | 8.9 mg/day ^d | 12 | 52 | 8 | OP | • | • | • | • |
| | Zanarini (2001) ⁴² | 5.3 mg/day | 24 | 28 | 0 | OP | • | • | • | • |
| Ziprasidone | Pascual (2008) ³⁴ | 81 mg/day | 12 | 49 | 11 | OP | • | • | • | • |
| Mood stabilisers | | | | | | | | | | |
| Carbamazepine | De la Fuente (1994) ¹⁹ | Blood levels 6.4–7.1 µg/ml | 5 | 14 | 6 | IP | • | • | • | |
| Valproate semisodium | Frankenburg (2002) ²² | 850 mg/day | 24 | 30 | 0 | OP | • | • | • | • |
| | Hollander (2001) ²⁵ | Mean blood valproate level 64.6 µg/ml | 10 | 11 | 10 | OP | • | • | • | • |
| Lamotrigine | Tritt (2005) ⁴¹ | 200 mg/day | 8 | 27 | 0 | OP | • | | • | • |
| Topiramate | Loew (2006) ²⁸ | 200 mg/day | 10 | 56 | 0 | OP | • | • | • | • |
| | Nickel (2004) ³¹ | 250 mg/day | 8 | 31 | 0 | OP | • | | • | • |
| | Nickel (2005) ³² | 250 mg/day | 8 | - | 44 | OP | • | | • | • |
| Antidepressants | | | | | | | | | | |
| Amitriptyline | Soloff (1989) ³⁹ | 149.1 mg/day | 5 | 68 ^a | 22 ^a | IP/OP | • | • | • | |
| Fluoxetine | Salzman (1995) ³⁶ | 40 mg/day | 12 | 14 | 8 | OP | • | • | | |
| | Simpson (2004) ³⁷ | 40 mg/day ^d | 12 | 25 | 0 | Partial IP | • | • | • | |
| Fluvoxamine | Rinne (2002) ³⁵ | 150 mg/day | 6 | 38 | - | OP | • | | • | |
| Phenelzine sulphate | Soloff (1993) ⁴⁰ | 60.5 mg/day | 5 | 82 ^a | 26 ^a | IP/OP | • | • | • | • |
| Mianserin | Montgomery (1981) ²⁹ | 30 mg/day | 24 | 26 | 12 | OP | • | | • | |
| Miscellaneous | | | | | | | | | | |
| Omega-3 fatty acids | Hallahan (2007) ²⁴ | 1.2 g/day of EPA + 0.9 g/day of DHA | 12 | 32 | 17 | OP | • | • | • | |
| | Zanarini (2003) ⁴⁴ | 1 g/day of EPA | 8 | 30 | 0 | OP | • | • | • | |

(continued)

Table DS1 (continued)

| Active drug | Study | Mean dose | Duration, weeks | Participants, <i>n</i> | | Setting | Study estimates | | | | |
|---|-------------------------------|--|-----------------|------------------------|-----------------|---------|-----------------|----------------------|--------------|----------------|---|
| | | | | Women | Men | | Core symptoms | Associated pathology | Tolerability | Adverse events | |
| <i>Active drug v. active drug</i> First-generation antipsychotic v. first-generation antipsychotic Loxapine v. chlorpromazine | Leone (1982) ²⁶ | 14.4 mg/day loxapine v. 110 mg/day chlorpromazine | 6 | 48 | 32 | OP | | | | | • |
| First-generation antipsychotic v. antidepressant Haloperidol v. amitriptyline | Soloff (1989) ³⁹ | 4.8 mg/day haloperidol v. 149.1 mg/day amitriptyline | 5 | 68 ^a | 22 ^a | IP/OP | • | • | • | | |
| Haloperidol v. phenelzine sulphate | Soloff (1993) ⁴⁰ | 3.9 mg/day of haloperidol v. 60.45 mg/day of phenelzine sulphate | 5 | 82 ^a | 26 ^a | IP/OP | • | • | • | | • |
| Second-generation antipsychotic v. antidepressant Olanzapine v. fluoxetine | Zanarini (2004) ⁴³ | 3.3 mg/day olanzapine v. 15.0 mg/day fluoxetine | 8 | 45 | 0 | OP | • | • | • | | • |
| <i>Active drug v. combination of active drugs</i> Second-generation antipsychotic v. second-generation antipsychotic + antidepressant Olanzapine v. olanzapine + fluoxetine | Zanarini (2004) ⁴³ | 3.3 mg/day olanzapine v. 3.2 mg/day olanzapine + 12.7 mg fluoxetine | 8 | 45 | 0 | OP | • | • | • | | • |
| Antidepressant v. antidepressant + second-generation antipsychotic Fluoxetine v. fluoxetine + olanzapine | Zanarini (2004) ⁴³ | 15.0 mg/day fluoxetine v. 12.7 mg fluoxetine + 3.2 mg/day olanzapine | 8 | 45 | 0 | OP | • | • | • | | • |

EPA, eicosapentaenoic acid; DHA, docosahexaenoic acid; IP, in-patients; OP, out-patients.
a. Overall sample, consisting of three groups.
b. Participants started as in-patients but were allowed to continue as out-patients later.
c. Mean modal dose.
d. All participants received concomitant dialectical behaviour therapy.

Table DS2 Drug v. placebo comparisons

| Outcome | Class of drug | | | | Drug | Effect estimates, <i>n</i> | Participants, <i>n</i> | Effect sizes (95% CI) |
|---------------------------------------|---------------|----------------|-----------------|----------------|-----------------------------------|----------------------------|------------------------|--|
| | FGA | SGA | Mood stabiliser | Antidepressant | | | | |
| <i>BPD severity</i> | | | | | | | | No significant effects |
| <i>BPD pathology</i> | | | | | | | | |
| Affective dysregulation | | | | | | | | |
| Affective instability | | ■ | | | Olanzapine | 3 | 631 | SMC -0.16 (-0.32 to -0.01) |
| Chronic feelings of emptiness | | | | | | | | No significant effects |
| Inappropriate anger | ■ | | | | Haloperidol | 2 | 114 | SMD -0.46 (-0.84 to -0.09) |
| | | ■ | | | Aripiprazole | 1 | 52 | SMD -1.14 (-1.73 to -0.55) |
| | | ■ | | | Olanzapine | 3 | 631 | SMC -0.27 (-0.43 to -0.12) |
| | | | ■ | | Valproate semisodium ^a | 1 | 16 | SMD -1.83 (-3.17 to -0.48) |
| | | | | | | | | Direction of effect supported by another RCT |
| | | | ■ | | Lamotrigine | 1 | 27 | SMD -1.69 (-2.62 to -0.75) |
| | | | ■ | | Topiramate ^a | 2 | 85 | SMD -3.00 (-3.64 to -2.36) |
| | | | ■ | | Topiramate ^a | 1 | 42 | SMD -0.65 (-1.27 to -0.03) |
| Cognitive-perceptual symptoms | | | | | | | | |
| Identity disturbance | | | | | | | | No significant effects |
| Stress-related paranoia/dissociation | | ■ | | | Aripiprazole | 1 | 52 | SMD -1.05 (-1.64 to -0.47) |
| | | ■ | | | Olanzapine | 3 | 631 | SMC -0.18 (-0.34 to -0.03) |
| Impulsive-behavioural dyscontrol | | | | | | | | |
| Self-mutilating or suicidal behaviour | ■ | | | | Flupentixol | 1 | 37 | RR 0.49 (0.29 to 0.92) |
| | | ■ ^b | | | Olanzapine ^c | 2 | 340 | SMC 0.29 (0.07 to 0.50) Unfavourable direction of effect. Also supported by two other RCTs |
| | | ■ | | | Olanzapine ^c | 1 | 287 | MCD -0.10 (-0.20 to 0.00) |
| | | | | ■ | Omega-3 fatty acid | 1 | 49 | RR 0.52 (0.28 to 0.95) |
| Impulsivity | | ■ | | | Aripiprazole | 1 | 52 | SMD -1.84 (-2.49 to -1.18) |
| | | | ■ | | Lamotrigine | 1 | 27 | SMD -1.62 (-2.54 to -0.69) |
| | | | ■ | | Topiramate ^a | 2 | 71 | SMD -3.36 (-4.44 to -2.27) |
| Interpersonal problems | | | | | | | | |
| Frantic efforts to avoid abandonment | | | | | | | | No significant effects |
| Unstable relationships | | ■ | | | Aripiprazole | 1 | 52 | SMD -0.77 (-1.33 to -0.20) |
| | | | ■ | | Valproate semisodium | 1 | 30 | SMD -1.04 (-1.85 to -0.23) |
| | | | ■ | | Topiramate | 1 | 56 | SMD -0.91 (-1.36 to -0.35) |
| Associated pathology | | | | | | | | |
| Depression | | ■ | | | Aripiprazole | 1 | 52 | SMD -1.25 (-1.85 to -0.65) |
| | | | ■ | | Valproate semisodium | 2 | 46 | SMD -0.66 (-1.31 to -0.01) |
| | | | | ■ | Amitriptyline | 1 | 57 | SMD -0.59 (-1.12 to -0.06) |
| | | | | ■ | Omega-3 fatty acid ^c | 1 | 49 | RR 0.48 (0.28 to 0.81) |
| | | | | | | | | Direction of effect supported by another trial |
| Anxiety | | ■ | | | Aripiprazole | 1 | 52 | SMD -0.73 (-1.29 to -0.17) |
| | | ■ | | | Olanzapine | 1 | 274 | MCD -0.22 (-0.41 to -0.03) |
| | | | ■ | | Topiramate | 1 | 56 | SMD -1.40 (-1.99 to -0.81) |
| General psychiatric pathology | | ■ | | | Aripiprazole | 1 | 52 | SMD -1.27 (-1.87 to -0.67) |
| | | | ■ | | Topiramate | 1 | 56 | SMD -1.19 (-1.76 to -0.61) |
| Mental health status | | | | | | | | No significant effects |
| Tolerability | | | | | | | | |
| Risk of non-completing | | | | | | | | No significant effects |

BPD, borderline personality disorder; FGA, first-generation antipsychotic; MCD, mean change difference; RCT, randomised controlled trial; RR, risk ratio; SGA, second-generation antipsychotic; SMC, standardised mean change; SMD: standardised mean difference.

a. For this comparison and outcome several study effects were available, but owing to statistical heterogeneity ($I^2 > 75\%$) they were not pooled.

b. Unfavourable direction of effect.

c. Study effects were not pooled, owing to different formats of outcome reporting.