

The effectiveness of nursing interventions with personality disorders

A Systematic Review of the Literature



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of MANCHESTER

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Health Visiting**

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1 EXECUTIVE SUMMARY

A systematic review of the literature on the effectiveness of nursing interventions with personality disorder has been carried out.

1.1 Objectives

The review had five objectives: (1) to conduct a systematic review of the effectiveness of nursing interventions with personality disorders (2) where possible meta-analyse all intervention studies which compare one intervention with another; or no intervention and treatment as usual (3) to undertake an assessment of the internal validity (the extent to what they measure what they purport to measure) and the external validity (the extent to which the results are generalisable or applicable to clinical practice) of included studies (4) to draw together the evidence base for nursing interventions with personality disorders and (5) determine what future research needs to be done to build on this.

1.2 Search strategy

Several electronic databases were searched to identify relevant studies for the review. These included: the British Nursing Index, CINAHL, the Cochrane Library and Dare databases, EMBASE, HMIC, MEDLINE, National Research Register, PsycINFO, SIGLE, Dissertation abstracts, WorldCat and COPAC. This searching was supplemented with footnote chasing, hand searching and contact with authors of studies.

1.3 Selection criteria

Studies were selected according to the Centre for Reviews and Dissemination Report Number 4 guidelines. All levels of trial and study were considered suitable for inclusion in the review: randomised controlled trials; controlled trials with pseudo-randomisation; controlled trials with no randomisation; prospective cohort studies with concurrent or historical controls; retrospective cohort studies with concurrent controls; retrospective case-control studies; comparative studies; and descriptive studies. Studies at the lowest level of evidence, the opinions of respected authorities based on clinical experience and reports of expert committees, were excluded.

1.4 Data extraction

Data were independently extracted by two reviewers. Dr Woods extracted data from all included studies and Dr Christopher and Ms Ryan from half each.

1.5 Data synthesis

Where possible effect sizes were calculated. The magnitude of effect in relation to non-overlap of treated and control scores was determined for outcomes.

Attempts were made to synthesise outcome data using forest plots. However, because of widely divergent measurement instruments used it was not possible to combine effect sizes across studies.

Outcome data were also synthesised by study design; nursing only versus mixed disciplines intervention; and effectiveness of the type of intervention (group, individual, mixed, cognitive behavioural; or management).

1.6 Results

1.6.1 Design

Twenty papers met the inclusion criteria for the review, representing 18 separate studies: four randomised controlled trials, four non-randomised controlled trials, seven before-and-after studies, and three case studies.

1.6.2 Quality

Overall methodological quality was poor and this should be, therefore, borne in mind when interpreting the results. The randomised controlled trials were considered low in terms of quality of randomisation, sample size, loss to follow-up and analysis; and were graded as C, where there is a high risk of bias that seriously weakens confidence in the results. All four studies are susceptible to selection, performance and attrition biases; and to a lesser extent but still susceptible to detection bias. The non-randomised controlled trials were considered moderate in terms of quality of baseline and drop-out rate comparability and completeness of follow-up. However, all studies are susceptible to performance and detection bias. The before-and-after studies were all considered low in terms of quality of blinding of assessors and length of follow-up. No attempt was made to examine the quality of the case studies. However, one of these case studies stood apart from the others as a well designed before-and-after single case experimental design.

1.6.3 Nursing only and mixed disciplines studies

Five of the studies were nursing only intervention and generally the study quality or data reporting was so poor that these add little evidence to the review. The remaining 11 studies were all mixed disciplines intervention with a varied nursing contribution.

1.6.4 Participants

Eight studies included high percentages of, or only patients with, borderline personality disorder: three randomised controlled trials; two non-randomised controlled trials; two before-and-after studies; and one case study. One randomised controlled trial included many patients with no diagnosis of personality disorder. Eleven studies confirmed DSM diagnosis: three randomised controlled trials; two non-randomised controlled trials; five before-and-after studies; and one case study. In 11 studies a high percentage of patients were women: three randomised controlled trials; two non-randomised controlled trials; three before-and-after studies; and all three case studies. There was a wide range of sample sizes from one to 120. For the randomised controlled trials these ranged from four to 120. For the non-randomised controlled trials these ranged from ten to 90. For the before-and-after studies these ranged from seven to 81. For the case studies these ranged from one to four.

1.6.5 Forensic mental health care studies

Four studies were undertaken within forensic mental health settings: three before-and-after studies, all within high security male wards; and one case study in a medium secure unit. Two of these were nursing only studies: one before-and-after study and one case study. The remaining two were mixed disciplines before-and-after studies.

1.6.6 Intervention

A wide range of interventions were utilised in the 18 studies. Predominately in the mixed disciplines studies a form of psychotherapy was the intervention under investigation and in the nursing only studies an approach to management.

In summary interventions were:

- **Group** (group therapy and group psychotherapy) - one nursing only before-and-after study, two mixed disciplines RCTs, two mixed disciplines before-and-after studies
- **Individual** (individual psychotherapy) - one mixed disciplines non-RCT, one mixed disciplines before-and-after study
- **Mixed** (mixtures of individual and group psychotherapy and therapeutic milieu) – one mixed disciplines RCT, two mixed disciplines non-RCTs, two mixed disciplines before-and-after studies
- **Cognitive behavioural** (cognitive behavioural therapy and dialectical behaviour therapy) - one nursing only case study, one mixed disciplines before-and-after study, one mixed disciplines case study
- **Management** (treatment contract, nursing challenge and emergency care contract) - one nursing only RCT, one nursing only non-RCT, one nursing only case study

In two randomised controlled trials therapists were formally trained to carry out the intervention: in one reliability of the training was measured. In two non-randomised controlled trials it was reported that formal training was given to carry out the intervention. In one before-and-after study it was apparent that training was given to carry out the intervention and in one training was given during the course of the intervention. In three before-and-after studies the intervention was provided by experienced facilitators. In one case study the intervention was given by a trained nurse therapist and in the other two by trainee therapists.

Three randomised controlled trials measured treatment fidelity, two through supervision and one through compliance. One non-randomised controlled trial measured treatment fidelity through supervision. Three before-and-after studies measured treatment fidelity through supervision and in one it was integral to the research evaluation. Two case studies ensured treatment fidelity through supervision.

1.6.7 Outcome

There was a wide range in the length of follow-up within the studies. For the randomised controlled trials this ranged from six weeks to 18 months end of treatment time; and eight months post-treatment to 24 months post treatment (including treatment time). For the non-randomised controlled trials this ranged from three weeks post admission to 17 months (which included treatment time). For the before-and-after studies this ranged from ten weeks post-treatment to 18 months (completion of treatment). For the case studies this was six months post-treatment (reported in one of the three studies).

The 18 studies included in the review measured a total of 62 separate outcomes condensed into four standard outcome categories, and “other” for those outcomes falling outside of these: change in social functioning and/or disability (31 outcomes); change in service usage (seven outcomes); change in symptoms (six outcomes); change in personality disorder status (five outcomes); and other (13 outcomes).

1.6.8 Treatment/outcome results

1.6.8.1 Nursing only versus mixed disciplines intervention

Nursing only studies reported positive outcomes from two of the outcome categories, whereas, the mixed disciplines studies reported positive effects from all four:

- ***change in service usage*** – one mixed disciplines RCT, one mixed disciplines non-RCT, one mixed disciplines before-and-after study
- ***change in personality disorder status*** – two mixed disciplines non-RCTs, two mixed disciplines before-and-after studies
- ***change in symptoms*** – two mixed disciplines RCTs, one mixed disciplines non-RCT, three mixed disciplines before-and-after studies, one nursing only case study
- ***change in social functioning and/or disability*** – two mixed disciplines RCTs, one mixed disciplines non-RCT, three mixed disciplines before-and-after studies, one mixed disciplines case study, one nursing only case study

The mixed disciplines studies also reported no effect for three of the four outcome categories:

- ***change in service usage*** – one mixed disciplines RCT, one mixed disciplines non-RCT
- ***change in symptoms*** – one mixed disciplines RCT, one mixed disciplines before-and-after study
- ***change in social functioning and/or disability*** – one mixed disciplines RCT, two mixed disciplines before-and-after studies

1.6.9 Forensic mental health care studies

There was evidence reported from one mixed disciplines before-and-after study of significant clinical gain, and from one nursing only case study for change in symptoms, and change in social functioning and/or disability.

1.6.10 Type of intervention

1.6.10.1 Group intervention

Positive outcomes were reported for three of the four outcome categories:

- ***change in personality disorder status*** – one mixed disciplines before-and-after study
- ***change in symptoms*** – one mixed disciplines RCT; one mixed disciplines before-and-after study
- ***change in social functioning and/or disability*** – one mixed disciplines RCT; one mixed disciplines before-and-after study

No effect was reported for three of the four outcome categories:

- ***change in service usage*** – one mixed disciplines RCT
- ***change in symptoms*** – one mixed disciplines RCT
- ***change in social functioning and/or disability*** – one mixed disciplines RCT; one mixed disciplines before-and-after study

1.6.10.2 Individual intervention

Positive outcomes were reported for all four of the outcome categories:

- ***change in service usage*** – one mixed disciplines before-and-after study
- ***change in personality disorder status*** – one mixed disciplines non-RCT; one mixed disciplines before-and-after study
- ***change in symptoms*** – one mixed disciplines before-and-after study
- ***change in social functioning and/or disability*** – one mixed disciplines before-and-after study

1.6.10.3 Mixed intervention

Positive outcomes were reported for all four outcome categories:

- ***change in service usage*** – one mixed disciplines RCT; one mixed disciplines non-RCT
- ***change in personality disorder status*** – one mixed disciplines non-RCT
- ***change in symptoms*** – one mixed disciplines RCT; one mixed disciplines non-RCT; one mixed disciplines before-and-after study

- *change in social functioning and/or disability* – one mixed disciplines RCT; one mixed disciplines non-RCT; one mixed disciplines before-and-after study

No effect was reported for one of the four outcome categories:

- *change in service usage* – one mixed disciplines non-RCT

1.6.10.4 Cognitive behavioural intervention

Positive outcomes were reported for two of the four outcome categories:

- *change in symptoms* – one nursing only case study
- *change in social functioning and/or disability* – one nursing only case study; one mixed disciplines before-and-after study

No effect was reported for two of the four outcome categories:

- *change in symptoms* – one mixed disciplines before-and-after study
- *change in social functioning and/or disability* – one mixed disciplines before-and-after study

1.6.10.5 Management intervention

All studies provided insufficient data to assess effect.

1.7 Conclusions

The review had five objectives:

- (1) to conduct a systematic review of the effectiveness of nursing interventions with personality disorders

This review identified 18 studies of mental health care for people with personality disorders involving nurses. These studies consisted of four randomised controlled trials, four non-randomised controlled trials, seven before-and-after studies, and three case studies. Five of the studies tested nursing only interventions with the remaining 11 studies testing interventions delivered by mixed disciplines with a varied nursing contribution.

- (2) where possible meta-analyse all intervention studies which compare one intervention with another; or no intervention and treatment as usual

Meta-analysis proved difficult due to the heterogeneity of both interventions and outcome measures. Narrative synthesis showed that there is a weak evidence base for what constitutes effective nursing intervention with personality disorder. In the case of nursing only intervention studies positive effect was reported for two outcome categories but only from one single case study. There was insufficient

evidence to determine effect from the other four nursing only intervention studies. There is stronger evidence from the mixed disciplines intervention studies with the strongest evidence being for change in symptoms, followed by change in social functioning and/or disability; then change in service usage and finally change on personality disorder status.

There is more evidence of improvement in the outcome categories from the psychological approach intervention studies than from the nursing management studies. In terms of specific interventions studied, the mixed and individual psychotherapy studies show the greatest level of improvement for all four outcome categories compared to group interventions and cognitive-behavioural therapy. However, cognitive-behavioural therapy shows early promise but, like other approaches, but has yet to be tested properly in good quality trials.

Within the area of forensic mental health care there is evidence from two before-and-after studies and one case study where nurses have delivered interventions showing positive outcome.

(3) to undertake an assessment of the internal validity (the extent to what they measure what they purport to measure) and the external validity (the extent to which the results are generalisable or applicable to clinical practice) of included studies

Overall methodological quality was poor with problems with the quality of randomisation, sample size, loss to follow-up and analysis in the randomised controlled trials giving a high risk of susceptibility to selection, performance, attrition and detection biases. The non-randomised controlled trials were of only moderate quality in terms of baseline and drop-out rate comparability and completeness of follow-up, rendering them susceptible to performance and detection bias. The before-and-after studies were of low quality in terms of blinding of assessors and length of follow-up. One of the case studies was a well designed before-and-after single case experimental design. Across all designs, therefore, there are problems with studies only following-up patients until the end of treatment, the inclusion of small sample sizes and high attrition.

External validity and generalisability is limited by the specialist nature of many of the experimental environments, the heterogeneity of interventions and by the lack of nursing management intervention studies.

(4) to draw together the evidence base for nursing interventions with personality disorders

As above, the evidence is very limited. Nurses have participated in individual, group, mixed and cognitive behavioural psychotherapy trials with mixed success. Trials are equivocal even in outcome domains where the strongest evidence of effect exists – symptoms and social functioning – with some randomised controlled trial results in all domains failing to demonstrate a positive effect of the experimental intervention. The specific utility of any ‘nursing’ interventions cannot be supported by this review. No conclusions can be drawn, therefore, from the available studies to assist nurses implement evidenced based management interventions with personality disordered patients.

There is, however, a division between the studies included in relation to psychological approaches versus management approaches, and nursing only versus mixed disciplines input. Generally it is the management and nursing only approaches which have the poorest evidence base.

(5) determine what future research needs to be done to build on this.

The evidence base for nursing interventions in personality disorder, whether conducted as part of a multi-professional delivery team or as a professionally unique endeavour, is flimsy. Unlike other areas of mental health care, for example cognitive behavioural and psychosocial interventions with neurosis and psychosis where there is a research tradition stretching back 30 years, nurses are not substantially involved in either research or delivery of evidence base care. As the single largest group of mental health care providers to this population, there is no reason to predict that nurses could not make a similar contribution within personality disorder treatment delivery.

There are, therefore, a number of implications for future research and practice which have emerged from this systematic review of the literature. These are very much focussed on developing the poor evidence base that has been found from the nursing only intervention studies, which are predominantly patient management focussed.

1. Studies, including randomised controlled trials, should be undertaken to examine and test approaches to nursing management in the day to day care of people with personality disorder. Research undertaken should be designed to answer the question it sets out to, and needs to be pragmatic in its design and administration. This will inevitably require greater collaboration between researchers and centres, but will allow access to greater sample sizes, also making results more generalisable
2. Better quality randomised controlled trials of all psychological therapy approaches involving multi-professional teams (including nurses) are needed in order to reduce the biases found in the studies in this review.
3. Research methodologies should be developed around practice-based evidence, such as that utilised in the single case experimental design used in one of the nursing only case studies in this review. However, use of this methodology would need to be hypotheses generating and aimed at testing further with research methodologies that are less prone to bias. This would facilitate the development of the scientist practitioner in nursing and encourage routine outcome measurement in clinical practice.
4. A standardised set of outcome measures covering the major domains identified from this review should be agreed and implemented for research, audit and clinical governance purposes. Outcome measures should be dichotomous and based on meaningful outcomes to patients and clinicians. This would address the difficulties found in this review of meta-analysing data from heterogeneous and incompatible outcome measures.
5. Cognitive and behavioural and psychosocial approaches to both psychotherapy and management should be tested in randomised controlled trials to capitalise on these developments for nursing in other mental health care fields. These trials may involve testing the efficacy of training approaches for mental health nurses working with people who have personality disorders.

2 BACKGROUND

There is little doubt that of all the diagnoses, personality disorder raises more emotions within forensic mental health professionals than any other. Some professionals are convinced the disorder is untreatable, whilst others believe that it is. Consequently it is the most controversial category of mental disorder within psychiatry and associated disciplines (MacLean Committee, 2000). Within the UK the whole issue of personality disorder diagnosis is clouded by the legal category of psychopathic disorder. The Mental Health Act 1983 defines psychopathic disorder as 'a persistent disorder or disability of mind (whether or not including significant impairment of intelligence) which results in abnormally aggressive or severely irresponsible conduct'. Any forensic mental health service, whether high or medium security, or within the prison service, will find a high proportion of their population has one or more personality disorders. Moreover, many patients diagnosed with a mental illness have co-morbid personality disorder.

The most recently published review of the prevalence rate of personality disorders within forensic services is Moran (1999). However, this review was specifically commissioned to report on the prevalence of anti-social personality disorder and its diagnostic equivalents of psychopathy, sociopathy and dissocial personality disorder, the most frequently occurring and studied of all the personality disorders in forensic services.

Studies have repeatedly shown that a high percentage of any forensic population can be expected to fulfil formal diagnostic criteria for one or more personality disorders. Moreover, the prevalence rate appears to vary widely. Within high security hospitals, Mbatia & Tyrer (1988) in a sample of 103 consecutive admissions judged 77% to have a personality disorder. Maden *et al.* (1995) found 24% with a primary diagnosis of personality disorder. Hamilton (1990) based on 1990 figures of all four high security hospitals reported an overall rate for psychopathic disorder of 24%. Blackburn *et al.* (1990) reported that 68% of their sample met the criteria for at least one personality disorder, and only 12% displayed an absence of deviant personality traits. Thompson *et al.* (1997) in a study at the State Hospital Carstairs that 5.4% had a primary diagnosis of anti-social personality disorder. Smith *et al.* (1991) examining female admissions to a regional secure unit found that 33% were said to be personality disordered. Coid *et al.* (1999) reported on patients with personality disorder admitted to secure forensic psychiatry services in England and Wales. Over the seven year period 16% of admissions were from patients with personality disorder. Proportionately more were admitted to high security care. Singleton *et al.* (1998) in the most recent survey of psychiatric morbidity among prisoners report a high prevalence of personality disorder: for the male remand 78%, for the male sentenced 64% and for female prisoners (both remand and sentenced collectively) 50%. Further, they report anti-social personality disorder as having the highest prevalence rate: 63%, 49% and 31% respectively.

Personality disorders manifest themselves through many different behavioural repertoires, many of these starkly anti-social. Nurses are usually tasked to provide appropriate care for those with severe personality problems on a day to day basis (Tennant & Hughes, 1997). Consequently, it is important to establish how effective nursing interventions are for personality disorders, both in general management and more specific therapeutic approaches.

Melia (1997) discussed succinctly a number of behavioural deficits found within a personality disorder unit in a high security hospital:

'Often with personality disorders relationships are emotionally intense, with social interaction often occurring in corrupted or exploitative ways. Anger and hostility are high, with the added burden of expecting to be harmed, exploited or let down. Rejection or abuse is anticipated and loyalties are tested. There is preoccupation with the protection of self, with little concern for the feelings of others or concern for future consequences. There appears to be no capacity to experience guilt or to profit from experience, indeed, often they feel justified in having hurt or mistreated others and shift responsibility for own actions, through blame. They constantly invite collusion from others, cross boundaries, use splitting and secrets, or claim specific staff victimisation (Melia, 1997).'

This description paints a bleak picture yet the story is told from years of clinical experience of working with the most difficult patient group to nurse and engage in therapeutic activity.

The national forensic mental health research and development programme has identified the care and treatment of personality disorder as one of its priority areas. Identified as one the main priorities within this programme, and more recently in the Home Office & Department of Health (1999) document 'Managing dangerous people with severe personality disorder: proposals for policy development' is the effectiveness of interventions with personality disorders. Specifically, particular interventions which need to be evaluated are: dialectical behaviour therapy; cognitive therapy for antisocial personality disorder; and other psychological approaches. Moreover, research should be undertaken to gauge the effectiveness of interventions through randomised trials.

Issues of the provision of effective management versus treatment for personality disorder are current political and professional arguments. The crucial question, however, for planners, providers and commissioners of services, is what indications are there from the research, of what or what has not, been demonstrated to work. Moreover, there is a need to evaluate the regimes which modify behaviours through the use of pragmatic research methods.

The most comprehensive review to date of the treatment of psychopathy and antisocial personality disorders is Dolan & Coid (1993). They concluded that there was no evidence for the efficacy of a specific treatment, however, this should not mean that the treatment itself is ineffective. In summary they concluded for specific interventions that: dynamic psychotherapeutic approaches had shown limited effectiveness in short-term psychotherapy, and some short-term improvement following short-term in-patient psychotherapy; cognitive-behavioural psychotherapy had shown short-term improvement, however, there was only limited evidence for the long-term efficacy; and milieu therapy had shown little evidence for long-term efficacy. Further, it is reported that from the studies reviewed methodology was generally poor. Seven years of isolated pockets of research are underway, however, as yet the situation appears not to have changed. More recently the MacLean Committee (2000: 67) concluded that "although there was some anecdotal evidence of promising treatments, such as dialectical behaviour therapy and therapeutic communities, the majority of psychiatric responses reflected current 'therapeutic nihilism', and the lack of convincing research evidence to support any particular treatments".

Within the literature there are increasing numbers of publications reporting on therapies, which are being used to assist in the treatment of personality disorders by nurses. For example, cognitive behavioural therapy (Guy & Hume, 1998); cognitive and behavioural approaches (Tennant *et al.*, 1999); problem solving training and cognitive skills (Donnelly & Scott 1999); and therapeutic intervention based around offence, interpersonal difficulties and triumvirate nursing (Melia *et al.*, 1999).

Andrews *et al.* (1990), Antonowicz & Ross (1994), Hollin (1993) and Tennant *et al.* (1999) indicate that effective treatment must include: a sound theoretical base; multi-faceted programming; an individualised assessment of need; targeting of criminogenic needs; use of active and structured behavioural and social learning techniques; modelling of prosocial attitudes; and a cognitive-behavioural emphasis inclusive of social cognitive skills training. Tennant *et al.* (1999) describe a behavioural approach to caring for personality disorders, based around developing trust and a therapeutic relationship, employing the multidisciplinary assessment, focusing on symptoms and offending behaviours. More specifically the approach involves: a functional assessment of problem and offence related behaviours; assessment using the Hare Psychopathy Checklist; standardised psychiatric assessment (e.g. impulsivity, empathy, sexual interest, aggression, blame); pre- and post-test intervention psychological measures (e.g. sexual offending, arson, anger management); and monitoring and recording of behaviours. The MacLean Committee (2000: 75-76) considered there to be a lack of demonstrable benefit from any single treatment approach and that there is scope to develop and improve the task of long-term management in the context of a risk management strategy. Furthermore, they suggested that treatment interventions should focus on co-morbid conditions, such as alcohol or substance misuse, social functioning and behaviour: and that these are likely to be based on currently accepted psychotherapies, including cognitive and psychodynamic models, and therapeutic community approaches.

This systematic review of the literature, therefore, draws together the evidence-base for the effectiveness of nursing only intervention with personality disorders and where nurses are delivering the intervention to varying degrees with mixed disciplines. Further, this review indicates the way forward for future research.

3 OBJECTIVES

1. To conduct a systematic review of the effectiveness of nursing interventions with personality disorders.
2. Where possible meta-analyse all intervention studies which compare one intervention with another; or no intervention and treatment as usual.
3. To undertake an assessment of the internal validity (the extent to what they measure what they purport to measure) and the external validity (the extent to which the results are generalisable or applicable to clinical practice) of included studies.
4. To draw together the evidence base for nursing interventions with personality disorders.
5. To determine what future research needs to be done to build on this.

4 REVIEW METHODS

4.1 Search strategy

A number of narrow search strategies were piloted, as a consequence of which it was decided early on in the review that a wide search strategy was required if relevant literature were to be identified. Three lines of search output were utilised (#5, #6, #7 see section 4.1.1). These three outputs were finally incorporated when imported into reference manager software. Following this wider approach to the search, studies found not relevant were excluded by examination in reference manager software, thus leaving only studies meeting the inclusion criteria to be examined closer by both reviewers to determine final inclusion in the review or not. Although this was a daunting task considering the number of studies that would be identified it was a necessary stage.

4.1.1 *Electronic searching to obtain published work*

Several electronic databases were searched to identify relevant studies for the review. These included: the British Nursing Index, CINAHL, the Cochrane Library and Dare databases, EMBASE, HMIC, MEDLINE, National Research Register, and PsycINFO. The following search strategies were used:

a. **British Nursing Index (up to September 1999) and RCN Journals (1985 -)**

- #1 nurs*
- #2 Personality disorder*
- #3 psychopath*
- #4 #2 or #3
- #5 #1 and #4
- #6 mentally disordered offender*
- #7 reasoning and rehabilitation

b. **CINAHL (January 1982 to November 1999)**

- #1 nurs*
- #2 explode "personality disorders"
- #3 Personality disorder*
- #4 psychopath*
- #5 #2 or #3 or #4
- #6 #1 and #5
- #7 mentally disordered offender*
- #8 reasoning and rehabilitation

c. **The Cochrane and Dare databases (The Cochrane Library 1999, Issue 3)**

- #1 nurs*
- #2 personality disorder*
- #3 psychopath*
- #4 #2 or #3
- #5 #1 and #4
- #6 mentally disordered offender*
- #7 reasoning and rehabilitation

d. EMBASE (January 1980 to November 1999)

- #1 nurs*
- #2 explode "personality disorders"
- #3 Personality disorder*
- #4 psychopath*
- #5 #2 or #3 or #4
- #6 #1 and #5
- #7 mentally disordered offender*
- #8 reasoning and rehabilitation

e. HMIC

- #1 nurs*
- #2 Personality disorder*
- #3 psychopath*
- #4 #2 or #3
- #5 #1 and #4
- #6 mentally disordered offender*
- #7 reasoning and rehabilitation

f. MEDLINE (January 1985 to December 1999)

- #1 nurs*
- #2 explode "personality disorders"
- #3 Personality disorder*
- #4 psychopath*
- #5 #2 or #3 or #4
- #6 #1 and #5
- #7 mentally disordered offender*
- #8 reasoning and rehabilitation

g. National Research Register Projects Database 2000 Issue 1 (ongoing and complete projects)

((personality and disorder*) or psychopath*)

h. National Research Register 2000 Issue 1 (MRC Clinical Trials Directory, Register of Reviews in Progress, Heath Research at York Database)

All records

i. PsycINFO (January 1984 to December 1999)

- #1 nurs*
- #2 explode "personality disorders"
- #3 Personality disorder*
- #4 psychopath*
- #5 #2 or #3 or #4
- #6 #1 and #5
- #7 mentally disordered offender*
- #8 reasoning and rehabilitation

4.1.2 Electronic searching to obtain unpublished or unlisted work

a. SIGLE - grey literature database (January 1980 to June 1999)

- #1 personality disorder*
- #2 psychopath*
- #3 #1 or #2

b. Dissertation abstracts (January 1983 to December 1997)

- #1 personality disorder
- #2 intervention
- #3 #1 and #2

4.1.3 Electronic searching for books:

- a. WorldCat
- b. COPAC

4.1.4 Footnote chasing

The reference lists of all studies examined for the review were checked in order to identify other relevant citations.

4.1.5 Contact with the authors of studies

All corresponding authors of studies judged as eligible for the review were contacted in order to determine whether they have published or unpublished studies, or current work in progress. Subject experts known to the reviewers were also contacted.

4.1.6 Previous reviews

The reference lists of previous related reviews were searched for trials.

4.1.7 Handsearches

To identify of any recently published studies and any not correctly indexed in the databases a number of handsearches were undertaken in related journals and using the OVID Mental Health Collection.

- The Journal of Forensic Psychiatry 1990-1999
- Mental Health Practice vol 2 (1999) - vol 3 no 6 (March 2000)
- Mental Health Nursing 1994(vol 14)-1997 (vol 17)
- International Journal of Law and Psychiatry 1982 (vol 5)-1998 (vol 21)
- British Journal of Medical Psychology 72 no 1 (1999) onwards
- Therapeutic Communities 20 no 1 (1999) to 21 no 1

- Psychiatric Care 1994-1998
- American Journal of Psychiatry January 1995 152(1) - May 2000 175(5)
- Archives of General Psychiatry January 1995 52(1) – April 2000 57(4)
- British Journal of Psychiatry January 1995 166(1) – April 2000 176(4)
- Current Opinions in Psychiatry January 1995 8(1) – May 2000 13(3)
- Annual Review of Psychology 46(1995) – 50(1999);

4.2 Criteria for considering studies

4.2.1 Types of study

Any systematic review ideally would only include all randomised controlled trials or controlled before-and-after studies for treatment of personality disorders (published or unpublished). However, following an initial search of the evidence available it was unlikely there would be many, if any, studies reaching this strict criteria. Owing to the fourth objective of this review, to determine exactly what the evidence base is, all studies identified were graded according the CRD Guidelines for those carrying out or commissioning reviews (CRD Report Number 4) before a decision was finally made on which studies to be included. The grading criteria was as follows:

- I Well-designed randomised controlled trials
- Other types of trial:
 - II-1a Well-designed controlled trial with pseudo-randomisation
 - II-1b Well-designed controlled trials with no randomisation
- Cohort studies:
 - II-2a Well-designed cohort (prospective study) with concurrent controls
 - II-2b Well-designed cohort (prospective study) with historical controls
 - II-2c Well-designed cohort (retrospective study) with concurrent controls
- II-3 Well-designed case-control (retrospective) study
- III Large differences from comparisons between times and/or places with and without intervention (in some circumstances these may be equivalent to level II or I)
- IV Descriptive studies

All the other evidence which was graded into the lowest level suggested by the CRD guidelines was not included in the review. Specifically this was:

- IV Opinions of respected authorities based on clinical experience; and reports of expert committees

Included studies were restricted to English language publications.

4.2.2 Types of participant

4.2.2.1 Inclusion criteria

- Any individual recorded with a personality disorder (however diagnosed)
- Male and female

- 18-65 years
- In-patient settings and community

4.2.2.2 Exclusion criteria

- None

4.2.3 Types of intervention

4.2.3.1 Inclusion criteria

- Any nursing intervention aimed at reducing or alleviating behavioural repertoires associated with personality disorders [**include if nurses are one of a number of disciplines delivering the intervention**]

4.2.3.2 Exclusion criteria

- Where the discipline delivering the intervention **specifically excludes** nursing (i.e. psychologist, therapist, etc)

4.2.4 Types of outcome measures

- Any

4.2.4.1 Exclusion criteria

- None

4.3 Assessment of relevance for inclusion in the review

The first reviewer examined all abstracts obtained via the search strategies outlined earlier. Studies which were considered suitable for closer examination were based on the inclusion criteria of an apparent nursing intervention with personality disorder which was being evaluated through research. All studies which were felt suitable for inclusion were read independently by two reviewers to judge eligibility. The inclusion guidelines used by the reviewers to guide their decision was based on four criteria: (1) study design met inclusion criteria (2) type of participant met inclusion criteria (3) type of intervention met inclusion criteria (4) there was an outcome measure. A copy of the criteria for considering studies for inclusion can be found in Annexe 1. The data sheet used to record reviewer decisions can be found in Annexe 2. Disagreements were resolved by discussion and/or by contact with the authors of the study.

4.4 Data extraction

Each study was read and information extracted by two reviewers independently. The data sheet used can be found in Annexe 3. Disagreements were resolved by discussion between the reviewers.

4.5 Data synthesis

Where possible effect sizes were calculated using the formula provided by Smith *et al.* (1980), which is based on the difference in the means of intervention and control group divided by the standard deviation for the control group. Although more recent variations to calculate effect size now exist, one of the randomised controlled trials used this formula to calculate their effect sizes. Effect sizes are defined according to Cohen (1988) as “small, $d=0.2$ ”; “medium, $d=0.5$ ”; “large, $d=0.8$ ”. The magnitude of effect was determined for outcomes and interpreted according to Cohen (1988) in relation to non-overlap of treated and control scores.

Attempts were made to synthesise outcome data using forest plots. However, because of widely divergent measurement instruments used it was not possible to combine effect sizes across studies.

Outcome data were also synthesised by study design; nursing only versus mixed disciplines intervention; and effectiveness of the type of intervention (group, individual, mixed, cognitive behavioural; or management).

5 RESULTS FROM SEARCH

A full description of the results obtained following the electronic search strategy can be found in Annexe 4. The references obtained were examined through a three stage process.

5.1 Stage I

Following removal of duplicate references 1825 potentials were identified through the electronic database main search strategy #5 (nurs* and (Personality disorder* or psychopath*)). A further 912 were identified using search #6 (mentally disordered offender*) and 418 with search strategy #7 (reasoning and rehabilitation). Thus, a potential 3328 references were examined by the first reviewer. Following, closer examination in relation to the participant and intervention inclusion criteria (e.g. personality disorder and nursing respectively) 298 references were identified for abstract examination. Although a number of references were found in the Cochrane and Dare databases using the above three search strategies none met the specific inclusion criteria. A summary of the results can be found in Box 1.

From BNI and RCN Journals, CINAHL, EMBASE, HMIC, MEDLINE, PsycINFO

Search #5

- total 1894; duplicates 69; left 1825, closer examination 217

Search #6

- total 1000; duplicates 88; left 912, closer examination 70

Search #7

- total 434; duplicates 16; left 418, closer examination 11

Grand total for closer examination 298

Cochrane and Dare databases

- 81 records identified, none suitable

Box 1: Summary results of search (1)

Box 2 summarises the number of projects identified following the search of the National Research Register projects database. A number of ongoing and complete projects were identified by the first reviewer through applying the inclusion criteria as suitable for closer examination. All records were examined in the National Research Register MRC Clinical Trials Directory, Register of Reviews in Progress and Health Research at York Database. None met the inclusion criteria.

National Research Register Projects Database

- 94 ongoing and 136 complete projects
- **11 ongoing and 22 complete projects for closer examination**

National Research Register MRC Clinical Trials Directory

- all 158 records were examined, none suitable

Register of Reviews in Progress

- all 318 records were examined, none suitable

Heath Research at York Database

- all 129 records examined, none suitable

Box 2: Summary results of search (2)

Box 3 summarises the results of the search for unpublished works. A number of potential references were identified in SIGLE with a small number warranting closer examination. Also included in this are the number of references identified through other sources (i.e. footnote searching, handsearching and contact with authors).

Unpublished work:

SIGLE

- total 79, **closer examination 6**

Dissertation abstracts (personality disorder and intervention)

- 51 records identified, none suitable

Books (WorldCat and COPAC)

- none identified

Footnote, handsearched and contact with authors

- total 41
- **for closer examination 18**

Box 3: Summary results of search (3)

5.2 Stage II

Following this initial examination of the large number of references identified through the wide search strategy employed, a number of potential references were identified which warranted closer examination by the first reviewer (see Box 4). The process for this closer examination required the first reviewer to read their abstracts or in the case of the projects make contact with the researcher.

Final results

- For closer examination 304
- 11 ongoing and 22 complete projects NRR for closer examination
- Plus the 18 identified from footnote, handsearching and contact with authors
- **78 papers identified for full examination by two reviewers**

Box 4: Number of studies closely examined for inclusion

5.3 Stage III

Papers identified through the process of closer examination led onto full examination for inclusion in the review. The number of full papers examined by both reviewers for assessment of inclusion can be found Box 5. The full reason for papers not being included can be found in the section 6.

Examined by two reviewers for inclusion

- 78 papers met criteria for inclusion and examined by two reviewers
- 58 not included
- **20 papers included in the review as they met the criteria**

Box 5: Number of studies examined for inclusion by the two reviewers

6 DETAILS OF STUDIES EXCLUDED FROM THE REVIEW

Section 11 provides the full references to the 58 papers initially assessed and not included in the review. Annexe 5 gives the reason for the paper not being included in relation to whether or not the paper met the inclusion criteria for design, type of participant, type of intervention, or if there was an outcome measure. Table 1 summarises where one or both of the reviewers concluded that the paper did not meet the inclusion criteria.

Criteria	N
All four	12
Design and outcome	13
Design, participant and outcome	10
Design, intervention and outcome	9
Intervention	6
Outcome	3
Design	3
Participant	1
Participant and design	1
Total	58

Table 1: Summary of reasons for non-inclusion

7 RESULTS

7.1 Details of studies included in the review

20 papers met the inclusion criteria for the review, representing a range of randomised controlled trials, non-randomised controlled trials, before-and-after studies, and case studies (see Table 2). The full references to these can be found in Section 10. Details of these will be reported in relation to the levels of quality which they reflect.

Type of study	N	Number of papers
Randomised controlled trial	4	5
Non-randomised controlled trial	4	4
Before-and-after study	7	8
Case study	3	3
Total	18	20

Table 2: Summary of included studies

7.1.1 Details of outcomes measured

The 18 studies included in the review measured a total of 62 separate outcomes. This was an unmanageably large amount to be considered of any use in data synthesis and comparison, thus, these were condensed into five standard outcome categories (Annexe 6 summarises the outcomes which were condensed into each category). Outcomes falling outside of these were categorised as other, and although reported were excluded from any data synthesis. The standard outcome categories were:

1. Change in service usage;
2. Change in personality disorder status;
3. Change in symptoms;
4. Change in social functioning and/or disability;
5. Cost;
6. Other.

Half (31) of the outcomes were condensed into the “change in social functioning and/or disability” outcome category; seven into the “change in service usage” outcome category; six into the “change in symptoms” outcome category; and five into the “change in personality disorder status” outcome category. There were no outcomes which could be considered as “cost” outcomes. The remaining 13 outcomes were condensed into the “other” outcome category.

7.1.2 *Randomised controlled trials*

7.1.2.1 *Description of randomised controlled trials*

Five papers included represented four randomised controlled trials. Munroe-Blum & Marziali (1995) and Marziali *et al.* (1999), in two papers reported different data from the same study. Where possible these will be reported as one study, however, as they report distinctly different components at times this is difficult. Table 3 summarises the population and sample characteristics, and attrition rates. Table 4 summarises the nature of the intervention, control and who carried out the intervention for the four studies. Table 5 summarises the results.

Bateman & Fonagy (1999) compared psychoanalytically orientated partial hospitalisation with standard psychiatric treatment for 44 patients with borderline personality disorder at a psychotherapy day unit. A number of outcomes were measured: (1) Frequency of suicide attempts and act of self-harm using a semi-structured interview called the suicide and self-harm inventory before entering into study and at six monthly intervals (the intervention group were carefully monitored for self-destructive acts. The control group were interviewed 6 monthly regarding self-mutilation and suicide attempts. Self-reporting was cross-checked with medical and psychiatric records); (2) the number and duration of inpatient admissions; (3) the use of psychotropic medication; (4) the level of depression and anxiety, general symptoms of distress, interpersonal function, and social adjustment using the self-rating measures: at baseline and three monthly intervals (BDI; Spielberger State-Trait Anxiety Inventory); at pre- and post-trial (Social Adjustment Scale, Inventory of Interpersonal Problems-circumflex version); and at baseline and six monthly intervals (SCL-90-R). Follow-up was at 18 months end of active treatment.

Munroe-Blum & Marziali (1995) in their first paper reported results in relation to the short-term group out-patient treatment for 110 patients with borderline personality disorder (12 months end of treatment and 24 months follow-up). They had hypothesised that borderline personality disorder patients treated with the experimental treatment, interpersonal group psychotherapy, would make greater improvements than the comparison, individual treatment as usual (individual dynamic psychotherapy) as behavioural dysfunction as measured by the OBI, general social performance as measured by the SAS and symptoms as measured by the HSCL-90 and the BDI. Outcome measures were behavioural dysfunction; social performance; and symptom status. Follow-up was for 24 months.

Marziali *et al.* (1999) later reported results of the relationships between therapeutic alliance and response to treatment in individual and group psychotherapy for 110 patients with borderline personality disorder in an out-patient department. They hypothesised that within each treatment model, patients' perceptions of their therapists' contributions to the alliance would predict effects of therapy. Their objectives: were to examine the relationship between therapeutic alliance and treatment effects (social adjustment, symptoms, behavioural indicators of psychopathology); examine the associations, if any, between alliance response and patient psychosocial status pre-treatment; examine the relationship between the therapeutic alliance and treatment duration; and evaluate the measures of the therapeutic alliance used in the study. Outcomes measured were symptom; social adjustment; behavioural dysfunction; service utilisation; and quality of therapeutic relationship. Follow-up was for 24 months.

Munroe-Blum & Marziali (1995) and Marziali *et al.* (1999) at the time of inclusion into the study and at 6, 12, 18, 24 month follow-up used measures of social performance (self-report Social Adjustment Scale - SAS); behavioural dysfunction and service utilisation (Objective Behaviour Index (OBI) – interview); and clinical symptom status (self-report BDI and Symptom Checklist - SCL-90). However, in Marziali *et al.* (1999) they also reported the quality of the therapeutic relationship in the group treatment by the Group Alliance Scale following sessions one, two, three, four, eight, 13, 18, 23, 28; and quality of the therapeutic relationship in the individual treatment by the self-rated sub-scale that addresses parallel therapist alliance behaviours from the Therapeutic Alliance Scale (P-TAS) was completed following sessions one, two, three, four, five, eight, 10, 15, 20.

O'Brien *et al.* (1985) tested the efficacy of written treatment contracts for 4 patients with borderline personality disorder on an inpatient adolescent psychiatric unit. The outcome measured was the number of self-destructive acts using no psychometric outcome measures, merely counting the number of self-destructive acts at 6 week follow-up.

Piper *et al.* (1993) reported the results of a controlled clinical trial of day treatment for 226 psychiatric patients suffering from serious long-term non-schizophrenic disorders, namely affective and personality disorders. Outcomes measured pre- and immediately post-treatment and control, and at follow-up were: (1) interpersonal functioning (modified Social Adjustment Scale (SAS) interview; self-report Interpersonal Behaviour Scale, The People in Your Life questionnaire, the emotional reliance sub-scale of the Interpersonal Dependency Scale, and the Attachment Questionnaire); (2) psychiatric symptomology (self-report Symptom Checklist (SCL-90), Mood Survey - mood level and mood reactivity subscales); (3) life satisfaction (SAS interview from an independent assessor); (4) self-esteem (Rosenberg Self-Esteem Scale); (5) defensive functioning (adaptive and maladaptive mechanisms factors from the self-rating Defensive Style Questionnaire); and (6) severity of disturbance associated with individual treatment objectives (written patient treatment objectives were formulated by both the patient and assessor, rating the severity of disturbance in the patients life). Follow-up was for a mean 31.4 weeks (SD=23.2; range 16-92).

Table 3: Population and sample characteristics of randomised controlled trials

Study	Population and sampling method	Entry/exclusion criteria	Size of intervention and control groups	Attrition
Bateman & Fonagy (1999)	<p>Population: All patients referred to the Unit during 1993 and 1994 (N=60 met criteria for inclusion).</p> <p>Sampling method: Random assignment</p>	<p>Entry: Criteria for Structured Clinical Interview for DSM-III-R (SCID) and the Diagnostic Interview for Borderline Patients. A cut off score of 7 or more was used to determine a formal diagnosis of borderline personality disorder.</p> <p>Exclusion: If the patient also met criteria for DSM-III-R (based on SCID) for schizophrenia, bipolar disorder, substance misuse, or mental impairment or had evidence of organic brain disorder</p>	<p>Intervention n=22 Control n=22</p>	<p>Control: In the first month n=3 crossed over to the partially hospitalised intervention group after serious suicide attempts.</p> <p>Intervention: N=3 (12%) dropped out of treatment in first six months</p>
<p>Munroe-Blum & Marziali (1995)</p> <p>And</p> <p>Marziali <i>et al.</i> (1999)</p>	<p>Population: Out-patients of the psychiatric units of the teaching hospitals of a large Canadian Urban University (N=110 eligible).</p> <p>Sampling: Randomised to out-patient individual or group treatment Signed informed consent prior to both screening procedure and treatment assignment</p>	<p>Entry: Males and females 18-65 years of age At least one previous psychiatric contact Met criteria for borderline personality disorder on Diagnostic Interview for Borderlines</p> <p>Exclusion: Language difficulty Neurological impairment or mental retardation A primary diagnosis of alcohol or drug addiction Physical disorders of a known psychiatric consequence</p>	<p>Randomised Intervention n=55 Control n=55</p> <p>Accepted therapy Intervention n=38 Control n=41</p> <p>Munroe-Blum & Marziali (1995) REDUCED DATASET REPORTED Intervention group n=22 Control group n=26</p> <p>Marziali <i>et al.</i> (1999) REDUCED DATASET REPORTED Intervention n=16 Control n=18</p>	<p>Of the 110 randomly allocated 31 withdrew at point of randomisation (n=10 control and n=21 for intervention)</p>

Table 3 (cont): Population and sample characteristics of randomised controlled trials

Study	Population and sampling method	Entry/exclusion criteria	Size of intervention and control groups	Attrition
O'Brien <i>et al.</i> (1985)	<p>Population: Subjects admitted to the unit</p> <p>Sampling: Random assignment to treatment or control group</p>	<p>Entry: Within 48 hours of admission were identified by the investigators as meeting DSM-III criteria for borderline personality disorder Present on admission with impulsivity or unpredictability in at least two areas which were potentially or physically self-damaging</p>	<p>The sample is reported as n=4 but not sure if this is each group or total</p>	<p>No data given</p>
Piper <i>et al.</i> (1993)	<p>Population: All patients referred from January 1989 who met inclusion criteria asked to participate and give informed consent n=248 patients (95% of those eligible) signed consent form</p> <p>Sampling: Before assignment to treatment or control groups – independent diagnostic assessment, matched in pairs according to DIS lifetime Axis I diagnosis, age, gender (matching followed a predetermined hierarchy of diagnoses, with affective disorders considered first, then anxiety disorders, then substance abuse disorders) – 1 patient was then randomly assigned to enter the 18 week treatment programme, the other assigned to the control group to enter treatment in 18 weeks time)</p>	<p>Entry: Long-term psychiatric difficulties that disrupted familial, social and work functioning Motivation for intensive treatment Capacity for group participation Age 13 or above</p> <p>Exclusion: Current psychosis Need for 24-hour hospitalisation due to suicidal or homicidal threat Current substance abuse Schizophrenia Severe intellectual impairment Ongoing treatment in another setting</p>	<p>Following random sampling 137 patients assigned to treatment – 79 completed 89 patients assigned to control – 61 completed</p> <p>patients dropping out of treatment or control were replaced by a matched patient</p> <p>For statistical analysis: First 60 matched pairs to complete treatment and control conditions (between January 1989 and December 1990)</p> <p>Thus: Intervention n=60 Control n=60</p>	<p>Intervention group n=22 before treatment began and n=36 after – 42% dropout rate Control group n=28 – 31.5% dropout rate</p>

Table 4: Description of intervention for randomised controlled trials

Study	Nature of intervention	Control	Who carried out the intervention
Bateman & Fonagy (1999)	Individual and group psychoanalytic psychotherapy for a maximum of 18 months: - Once-weekly weekly individual psychoanalytic psychotherapy - Thrice-weekly group analytic psychotherapy (1 hour each) - Once-a-week expressive therapy oriented toward psychodrama techniques (1 hour) - A weekly community meeting (1 hour) - All were spread over 5 days - Once a month the subject had a meeting (1 hour) with the case administrator - Once a month the subject had a medication review with the resident psychiatrist	Regular psychiatric review with senior psychiatrist when necessary; In-patient admission as appropriate, with discharge to non-psychoanalytic psychiatric partial hospitalisation focussing on problem solving; Outpatient and community follow-up as standard aftercare; The control group received no formal psychotherapy	Psychiatrically trained nurses who were members of the partial hospitalisation program's team but who had no formal psychotherapy qualifications.
Munroe-Blum & Marziali (1995) And Marziali <i>et al.</i> (1999)	Interpersonal group psychotherapy, manual guided, 30 sessions (25 weekly followed by 5 bi-weekly) each session scheduled for 1½ hours	Open-ended individual dynamic psychotherapy – although treatment as usual, several controls (1) comparable multi-disciplinary group of therapists (2) sessions 1 or 2 times a week (3) open-ended contract (3) responsibility for treatment placed entirely on therapist (5) treatment conducted from a psychodynamic perspective	Multi-disciplinary therapists, including a nurse (contact with author)
O'Brien <i>et al.</i> (1985)	Written treatment contract within 72 hours of admission	Nursing care as usual	Primary nurse
Piper <i>et al.</i> (1993)	Time-limited group psychodynamic psychotherapy. Patients expected to attend seven hours a day, five days a week for 18 weeks. Each day begins with a large psychotherapy group, attended by all patients and staff, average daily attendance of 40 patients. For the remainder of the day there are small groups led by co-therapists	Delayed treatment – patients were invited to attend weekly supportive outpatient group (few did)	Director of the Program, eight full-time therapists and a teacher – therapists hold BA or Master degrees in psychology, social work, occupational therapy or nursing

Table 5: Results from randomised controlled trials

Study	Results
Bateman & Fonagy (1999)	<p>Frequency of suicide attempts and self-harm</p> <p>Reported reduction in self-mutilation for intervention group and remained constant in control group Significant differences at 12 months (Mann Whitney U=110 p<0.04) and 18 months (Mann Whitney U=62 p<0.001) Intervention group median number of self-mutilations per 6-month period was reduced from 9 to 1 – control group over the same time period, the change was from 8 to 6 (intervention group Kendall's W=0.21, $\chi^2 = 11.9$, df=3, p<0.008; control group Kendall's W=0.05, $\chi^2 = 2.4$, df=3, n.s.). Group differences emerged by 12 months, and number of individuals no longer self-mutilating significantly greater by 18 months in the intervention group ($\chi^2 = 7.0$, df=1, p<0.008).</p> <p>Intervention group reduction in suicide attempts from 94.7% on admission (mean 1.68) to 5.3% at 18 months (mean 0.16) (Kendall's W=0.59, $\chi^2 = 33.5$, df=3, p<0.001). Control group (Kendall's W=0.04, $\chi^2 = 2.4$, df=3, ns). Group differences emerged at 6 months and the number of individuals no longer parasuicidal in the intervention group was significantly less by 12 months ($\chi^2 = 4.3$, df=1, p<0.05). For attempted suicide significant group differences at 6 months (Mann Whitney U=119 p<0.05) 12 months (Mann Whitney U=114 p<0.03) and 18 months (Mann Whitney U=75 p<0.001)</p> <p>Suicide attempts and self-mutilation were combined into a single binary variable (present/absent) – non-parametric correlation between presence of self-harm and demographic, clinical, and outcome variables revealed that for the intervention group no admission variable predicted outcome</p> <p>Number and duration of inpatient admissions</p> <p>Average length of hospitalisation in control group increased in last 6 months and in the intervention group remained relatively stable at 4 days per 6 months (at 12 months both groups 4-5 days – at 6 months intervention 2 days and control 12 days) Group-by-time interaction (F=7.7, df=1,35, p<0.01) – quadratic component (F=13.3, =1,35, p<0.001) – post hoc tests 6 months (t=7.66, df=36, p<0.001) and 18 months (t=13.23, df=36, p<0.001) For number of inpatient episodes group-by-time interaction (F=14.1, df=1,35, p<0.001) – quadratic component (F=19.9, =1,35, p<0.001).</p> <p>Use of psychotropic medication</p> <p>Need for medication reduced in both groups Control group – for those taking psychotropic medication at start of study 78% still taking at end. Intervention group - for those taking psychotropic medication at the start of study 38% still taking at the end (corrected $\chi^2 = 4.8$, df=1, p<0.03)</p>

Table 5 (cont): Results from randomised controlled trials

Study	Results
<p>Bateman & Fonagy (1999)</p> <p>Continued</p>	<p>The level of depression and anxiety, general symptoms of distress, interpersonal function and social adjustment</p> <p>Spielberger State-Trait Anxiety Inventory</p> <p>State mean scores decreased in the intervention group (admission mean=68.4, sd=7; 18 months mean=52.5, sd=11.5, adjusted mean=51.3)</p> <p>State mean scores remained unchanged in the control group (admission mean =63.2, sd=6.8; 18 months mean =65.5, sd=9.3, adjusted mean=66.6)</p> <p>Trait mean scores decreased in the intervention group (admission mean =66.5, sd=6.1; 18 months mean =56.8, sd=9.1, adjusted mean=55.2)</p> <p>Trait mean scores remained unchanged in the control (admission mean =62.0, sd=9.9; 18 months mean =61.0, sd=7.6, adjusted mean=63.0)</p> <p>Time-by-group interaction (state F=9.2, df=1, 33, p<0.005; trait Wilks's lambda=0.62, F=3.6, df=5, 29, p<0.02). Linear component of both interactions (state F=32.9, df=1, 33, p<0.001; trait F=15.1, df=1, 33, p<0.001)</p> <p>Post hoc significantly different levels from 9 months (state t=4.69, df=36, p<0.001; trait t=3.64, df=36, p<0.001).</p> <p>Beck Depression Inventory</p> <p>Scores significantly decreased in the intervention group (intervention admission mean =36.0, sd=7.6; 18 months mean =20.6, sd=7.0, adjusted mean=20.3). Control (admission mean =34.9, sd=7.4; 18 months mean =35.2, sd=7.4, adjusted mean=35.7)</p> <p>Group-by-time interaction (F=13.1, df=1, 33, p<0.001); change significant after 9 months (t=4.06, df=36, p<0.001) and continued throughout treatment. Linear trend significantly greater for intervention group than control group (F=58.3, df=1, 33, p<0.001).</p> <p>SCL-90-R</p> <p>- Global severity index score</p> <p>Intervention (admission mean =2.50, sd=0.58; 18 months mean =2.10, sd=0.82, adjusted mean=2.1)</p> <p>Control (admission mean =2.30, sd=0.71; 18 months mean =2.40, sd=0.70, adjusted mean=2.4)</p> <p>- Positive symptom total score</p> <p>Intervention (admission mean =74.1, sd=14.5; 18 months mean =70.7, sd=17.3, adjusted mean=72.0)</p> <p>Control (admission mean =72.3, sd=15.2; 18 months mean =73.1, sd=15.0, adjusted mean=73.5)</p> <p>Group-by-time interaction (Wilks's lambda=0.81, F=3.5, df=2, 31, p<0.05). Differences marked at 1 year and significant at 18 months (t=3.40, df=36, p<0.005).</p> <p>Interaction between group and time on the positive symptom total (F=3.0, df=1, 32, n.s.). Indicates severity of symptom reports rather than number of symptoms reported that decreased in the intervention group.</p>

Table 5 (cont): Results from randomised controlled trials

Study	Results
<p>Bateman & Fonagy (1999)</p> <p>Continued</p>	<p>Social Adjustment Scale Total score significantly lower for intervention group (mean=2.8) than control group (mean=3.3) at end of study - adjusted for initial values (F=8.7, df=1, 33, p<0.006).</p> <p>Inventory of Interpersonal Problems -circumflex version Mean total scores: on admission intervention group 2.38 (SD=0.33) and control group 2.31 (SD=0.32); intervention group during treatment 1.86 (SD=0.36) and control group 2.60 (SD=0.29) (F=63.7, df=1, 34, p<0.001).</p>
<p>Munroe-Blum & Marziali (1995)</p>	<p>On compliance acceptors did not differ from refusers on any of the per-treatment assessment measures, diagnosis or comorbidity - DIB scores in the 8 to 10 range and comorbidity with either Axis I or II disorders was the norm Out-patient referrals complied with treatment at twice the rate of in-patients To maximise the number of subjects available for analysis treatment compliance was defined as participation in three or more sessions of the assigned treatment (n=66) – owing to missing data – group treatment n=22 and individual treatment n=26</p> <p>Social performance At end of treatment (12 months) and 24 months (1 year follow-up) no significant difference between control and intervention groups However significant improvement in both control and intervention groups. <i>Thus reported were total cohort over time</i></p> <p>- Social Adjustment Scale Pre-treatment mean 2.13 (sd=0.42); 12 months mean 1.91 (sd=0.50); 24 months mean 1.89 (sd=0.56) [N=43; F(2,84)=7; 0.04(p=0.0001)]</p> <p>Behavioural dysfunction and service utilisation At end of treatment (12 months) and 24 months (1 year follow-up) no significant difference between control and intervention groups However significant improvement in both control and intervention groups. Thus reported were total cohort over time</p> <p>- Objective Behaviour Index Pre-treatment mean 32.01 (sd=10.88); 12 months mean 30.99 (sd=12.67); 24 months mean 23.61 (sd=10.58) [N=48; F(2,94)=10; 0.76(p<0.0001)] For the total cohort OBI – independently correlated with all other measures which were themselves highly correlated Separate multivariate analyses of variance for each of the OBI dimensions for the total cohort at 12 and 24 months yielded statistically significant time effects on all eight dimensions</p>

Table 5 (cont): Results from randomised controlled trials

Study	Results
<p>Munroe-Blum & Marziali (1995)</p> <p>Continued</p>	<p>Clinical symptom status At end of treatment (12 months) and 24 months (1 year follow-up) no significant difference between control and intervention groups However significant improvement in both control and intervention groups. Thus reported were total cohort over time</p> <p>- Symptom Checklist Pre-treatment mean 1.76 (sd=0.68); 12 months mean 1.26 (sd=0.69); 24 months mean 1.03 (sd=0.78) [N=45; F2,88)=16; 0.42(p<0.0001)]</p> <p>- BDI Pre-treatment mean 25.9 (sd=9.89); 12 months mean 18.4 (sd=12.46); 24 months mean 14.6 (sd=12.29) [N=46; F2,90)=017; 0.93(p=0.0001)]</p> <p>Effects on outcome of intensity of exposure to treatment Subjects who had attended 3 to 9 treatment sessions made comparable gains to those who received 10 or more.</p>
<p>Marziali <i>et al.</i> (1999)</p>	<p>Quality of therapeutic relationship NB – early alliance (control and intervention groups measured at session 2, 3 or 4); later alliance (control group measured at session 8 or 13; intervention group measured at session 8 or 10) Control group early alliance mean=3.65 sd=0.71, later alliance mean=3.82 sd=0.89, scale range 0-5 Intervention group early alliance mean=4.46 sd=0.50, later alliance mean =4.45 sd=0.39, scale range 1-7 No statistically significant differences between early and later alliance Strong association between early and later alliance for the control group (r=0.78, p<0.0001) 1 association of early alliance for intervention group with pre-treatment measures of symptoms and social functioning (early group alliance in expected direction with OBI behaviour sub-scale r= -0.56, p<0.02) Therapy duration for control group (mean number of sessions =17.1 sd=9.8 range 6-44) and intervention group mean number of sessions =17.5 sd=7.9 range 7-29) No significant associations between early and later alliance scores and therapy duration Control group early and later alliance accounted for a significant portion of variance in the measures of treatment effect, beyond that predicted by the pre-treatment scores, for SAS, BDI, SCL-90 at 12 month follow-up. At 24 month follow-up, both early and later alliance contributed to outcome variance for SAS Intervention group early alliance did not contribute significantly to variance on any measures of treatment effect at 12 or 24 month follow-up. Later alliance accounted for significant portions of variance , beyond that predicted by pre-therapy scores, for SAS, BDI, SCL-90 at 12 and 24 month follow-up</p>
<p>O'Brien <i>et al.</i> (1985)</p>	<p>Number of self-destructive acts Intervention group had a decreasing frequency of self-destructive acts in the six week period</p>

Table 5 (cont): Results from randomised controlled trials

Study	Results					
Piper <i>et al.</i> (1993)	Treatment group significantly greater improvement on 7 of the 17 outcome variables					
	Interpersonal functioning	Treatment	Control	t	df	P<
	Social dysfunction	4.4	5.6	4.31*	59	.000
	Family dysfunction	4.0	5.0	3.86*	58	.000
	Sexual dysfunction	4.0	5.0	2.04	41	.05
	Positive interpersonal behaviour	133.9	110.2	4.85*	38	.000
	Number of friends	3.0	2.2	2.30	40	.03
	Satisfaction with friends	4.7	4.6	0.41	30	.69
	Emotional reliance	43.2	46.8	1.50	40	.15
	Pathological attachment	2.4	2.5	1.21	32	.24
	*p<0.003 (Bonferrioni adjusted)					
	Psychiatric symptomology	Treatment	Control	t	df	P<
	SCL-90	0.7	1.1	2.52	37	.02
	Mood level	3.7	2.8	3.84*	39	.000
	Mood reactivity	3.8	4.2	1.52	39	.14
	*p<0.003 (Bonferrioni adjusted)					
	Life satisfaction	Treatment	Control	t	df	P<
		6.8	3.2	9.68*	58	.000
	p<0.003 (Bonferrioni adjusted)					
	Self-esteem	Treatment	Control	t	df	P<
		3.9	2.0	5.89*	40	.000
	p<0.003 (Bonferrioni adjusted)					
	Defensive functioning	Treatment	Control	t	df	P<
	Adaptive defences	4.3	3.5	2.83	40	.007
	Maladaptive defences	2.7	3.0	2.03	40	.05
	p<0.003 (Bonferrioni adjusted)					

Table 5 (cont): Results from randomised controlled trials

Study	Results					
Piper <i>et al.</i> (1993)	Severity of disturbance	Treatment	Control	t	df	P<
	Rated by patient	3.7	3.6	0.55	36	.59
Continued	Rated by assessor	2.1	3.8	10.74*	58	.000
	p<0.003 (Bonferroni adjusted)					
	Follow-up					
	From the 99 patients who completed treatment (60 treatment group and 39 control group)					
	50 provided follow-up data mean time=31.4 weeks (sd=23.2) range 16-92 [these did not differ significantly from the 49 who did not in demographic characteristics, axis I and II diagnoses, or pre-treatment scores on outcome variables]					
	Showed improvement (post-treatment and follow-up scores) on severity of disturbance rated by age post-treatment mean =3.7 and follow-up mean=2.8 (t=3.75, df=34, p<0.003). Patients maintained benefits on 16 of the 17 variables					
	Outcome variable			Effect size		% of control patients with worse outcome
	Social dysfunction			0.74		80
	Family dysfunction			0.69		78
	Sexual dysfunction			0.45		74
	Positive interpersonal behaviour			1.15		87
	Number of friends			0.51		80
	Satisfaction with friends			0.10		61
	Emotional reliance			0.35		63
	Pathological attachment			0.29		64
	SCL-90			0.53		79
	Mood level			0.92		85
	Mood reactivity			0.37		68
	Life satisfaction			1.58		90
	Self-esteem			1.22		95
	Adaptive defences			0.66		76
	Maladaptive defences			0.48		66
	Severity of disturbance rated by patient			0.14		49
	Severity of disturbance rated by assessor			1.96		95
	Mean all variables			0.71		76
	Mean variables with significant differences between groups			1.18		87

7.1.2.2 Scope of randomised controlled trials

In one study the intervention was performed solely by a nurse (O'Brien *et al.*, 1985) and in the remaining three the intervention was by mixed disciplines, with nurses delivering the intervention to varying degrees. The most frequently used intervention in the mixed disciplines studies was psychotherapy and this was compared with treatment as usual. In two studies the experimental treatment was group psychotherapy (Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999; Piper *et al.*, 1993). In Bateman & Fonagy (1999) both individual and group psychotherapy were utilised, alongside psychosocial nursing. In the nursing only study (O'Brien *et al.*, 1985) the intervention was through a written treatment contract.

The comparative control treatment was treatment as usual in three studies (Bateman & Fonagy, 1999; Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999; O'Brien *et al.*, 1985). In one study this was individual psychotherapy (Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999). One study used delayed treatment (Piper *et al.*, 1993).

Three studies included patients with borderline personality disorder (Bateman & Fonagy, 1999; Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999; O'Brien *et al.*, 1985). The remaining study (Piper *et al.*, 1993) included many patients with no diagnosis of personality disorder (intervention 38% and control 43%) and for those with a personality disorder in the intervention group 25% were dependent and 10% borderline and in the control group 18% and 16% respectively. Three studies confirmed DSM diagnosis (Bateman & Fonagy, 1999; O'Brien *et al.*, 1985; Piper *et al.*, 1993) and two used the Diagnostic Interview for Borderlines (Bateman & Fonagy, 1999; Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999).

It appeared that the researchers/program staff recruited patients in all four studies. A high percentage of patients were female in three studies (Bateman & Fonagy, 1999; Munroe-Blum & Marziali, 1995 [note only reflected in one paper]; Piper *et al.*, 1993). Samples sizes ranged from four to 120.

The four studies measured outcomes from three of the standard outcome categories, as well as the "other" category:

- **change in service usage** (the number and duration of inpatient admissions¹, service utilisation³, use of psychotropic medication¹);
- **change in symptoms** (level of depression¹, general symptoms of distress¹, clinical symptom status^{2,3}, level of anxiety¹, psychiatric symptoms⁵);
- **change in social functioning and/or disability** (self-esteem⁵, severity of disturbance⁵, frequency of suicide attempts and acts of self-harm¹, number of self-destructive acts⁴, behavioural dysfunction^{2,3}, defensive functioning⁵, life satisfaction⁵, interpersonal function^{1,5}, social adjustment¹, social performance^{2,3});

¹ Bateman & Fonagy (1999)

² Munroe-Blum & Marziali (1995)

³ Marziali *et al.* (1999)

⁴ O'Brien *et al.* (1985)

⁵ Piper *et al.* (1993)

- *other* (quality of therapeutic relationship³).

By far the majority of outcomes were self-report, others included healthcare utilisation and assessor-rated scales. There was a wide range in the length of follow-up: from 6 weeks-18 months end of treatment time; to 8 months post-treatment; to 24 months post treatment (which seemed to include treatment time).

7.1.2.3 *Quality of randomised controlled trials*

Methodological quality of randomised controlled trials was assessed using criteria suggested by the NHS Centre for Reviews and Dissemination (1996), Verhagen *et al.* (1998), and Clarke and Oxman (2000). A summary of the quality data for the studies can be found in Table 6.

In all four studies no details were given on how randomisation was undertaken, or if there was allocation concealment. Bateman & Fonagy (1999), Munroe-Blum & Marziali (1995) and Marziali *et al.* (1999) reported no significant differences on any of the baseline measures between those entering into the study and those who refused to. Bateman & Fonagy (1999) reported no significant differences on any demographic or clinically variables between the intervention and control groups, however, it was unclear if this was in relation to those randomly assigned or those completing treatment. Marziali *et al.* (1999) and Munroe-Blum & Marziali (1995) reported no significant differences on any demographic or clinically variables between the intervention and control groups. O'Brien *et al.* (1985) gave no data on characteristics between the intervention and control groups. Piper *et al.* (1993) reported no significant difference between the intervention and control groups on demographic and DIS Axis I diagnosis (lifetime or current), presence of Axis II diagnosis or prescribed psychotropic medication. However, significant differences were reported on 2 of the 17 outcome variables: interpersonal functioning in the family of origin; and number of friends (control group had greater family dysfunction and fewer friends).

In three of the four studies eligibility criteria were stated for both inclusion and exclusion (Bateman & Fonagy, 1999; Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999; Piper *et al.*, 1993). In the remaining (O'Brien *et al.*, 1985) only the inclusion criteria were specified. Blinding of assessors was partially met in three studies as they used at least one patient self-report as an outcome measure (Bateman & Fonagy, 1999; Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999; Piper *et al.*, 1993). It was unclear if patients and care givers were blinded. Completeness of follow-up was not met in three studies (Bateman & Fonagy, 1999; Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999; Piper *et al.*, 1993), with all reporting findings in relation to reduced datasets of completers, or those available at follow-up. In the remaining study it was unclear. Follow up of recruited patients in three studies was 44% and 31% (Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999 respectively); 53% (Piper *et al.*, 1993); and 86% (Bateman & Fonagy, 1999). None of the studies' analysis reported that they used intention to treat analysis. Two studies gave a power calculation (Munroe-Blum & Marziali, 1995 [reported in 1 paper]; Piper *et al.*, 1993). Data analysis mostly involved the use of analysis of variance or t-tests; there was some use of Mann Whitney U, correlation and exploratory regression analysis.

Overall, the methodological quality of the included studies has to be considered low in terms of quality of randomisation, sample size, loss to follow-up and analysis. This is particularly true for the

O'Brien *et al.* (1985) study, which reports only very scanty information towards the end of the paper. Clarke and Oxman (2000, p.41) indicate the validity of studies can be rated using three categories:

- A – Low risk of bias (all of the criteria are met)
- B – Moderate risk of bias (one or more criteria partially met)
- C – High risk of bias (One or more of the criteria not met).

Thus, applying these criteria all studies would be graded as C, where there is a high risk of bias that seriously weakens confidence in the results. All four studies are susceptible to selection, performance and attrition biases; and to a lesser extent but still susceptible to detection bias.

Table 6: Summary of methodological quality of randomised controlled trials

Quality measure	Bateman & Fonagy (1999)	Munroe-Blum & Marziali (1995) And Marziali <i>et al.</i> (1999)	O'Brien <i>et al.</i> (1985)	Piper <i>et al.</i> (1993)
Allocation concealment	Unclear	Unclear	Unclear	Unclear
Baseline comparability	Met	Met	Not reported	Met
Eligibility criteria	Met	Met	Met (inclusion only)	Met
Blinding of assessors	Partially met (patient self-report)	Partially met (patient self-report)	Not met	Partially met (patient self-report)
Blinding of care givers	Unclear	Unclear	Unclear	Unclear
Blinding of patients	Unclear	Unclear	Unclear	Unclear
Completeness of follow-up	Not met	Not met	Unclear	Not met
Intention to treat analysis	No	No	No	No
Power calculation	No	Yes [Munroe-Blum & Marziali (1995)] No [Marziali <i>et al.</i> (1999)]	No	Yes

7.1.2.4 Effect sizes from randomised controlled trials

Where possible effect sizes and the percentage non-overlap of treated and control scores were calculated according to the formula provided in Section 4.5. Effect sizes could be calculated for two of the four studies (Bateman & Fonagy, 1999; Marziali *et al.*, 1999). For one study effect sizes were reported in the results (Piper *et al.*, 1993). All were mixed disciplines intervention studies. Table 7 summarises the effect sizes and percentage non-overlap from the 3 studies.

Outcome	Effect size	% non-overlap
Change in social functioning and/or disability		
Interpersonal function ¹	2.55	Over 81.1
Interpersonal function – social dysfunction ³	0.74	Over 43.0
Interpersonal function – family dysfunction ³	0.69	Over 38.2
Interpersonal function – sexual dysfunction ³	0.45	Over 27.4
Interpersonal function – positive interpersonal behaviour ³	1.15	Over 58.9
Interpersonal function – number of friends ³	0.51	Over 33.0
Interpersonal function – satisfaction with friends ³	0.10	7.7
Interpersonal function – emotional reliance ³	0.35	over 21.3
Interpersonal function – pathological attachment ³	0.29	over 14.7
Defensive functioning – adaptive defences ³	0.66	over 38.2
Defensive functioning – maladaptive defences ³	0.48	over 27.4
Severity of disturbance – rated by patient ³	0.14	over 7.7
Severity of disturbance – rated by assessor ³	1.96	over 79.4
Life satisfaction ³	1.58	over 70.7
Self-esteem ³	1.22	over 62.2
Change in symptoms		
Depression ¹	1.97	Over 79.4
State anxiety ¹	1.40	68.1
Trait anxiety ¹	0.55	over 33.0
General symptoms of distress – global severity ¹	0.43	over 27.4
General symptoms of distress – positive symptoms ¹	0.16	over 7.7
Psychiatric symptoms – SCL-90 ³	0.53	over 33.0
Psychiatric symptoms – mood level ³	0.92	over 51.6
Psychiatric symptoms – mood reactivity ³	0.37	over 21.3
Other		
Quality therapeutic relationship – early alliance ²	1.14	Over 58.9
Quality therapeutic relationship – later alliance ²	0.71	Over 43.0

¹ Bateman & Fonagy (1999) ²Marziali *et al.* (1999) ³ Piper *et al.* (1993)

Table 7: Summary of effects sizes from randomised controlled trials

7.1.2.5 Synthesis of randomised controlled trials

It remains difficult to draw any firm conclusions from these four randomised controlled trials. Indeed, the one nursing only trial (O'Brien *et al.*, 1985) is so poorly reported that it offers only weak evidence to the review. From the remaining mixed disciplines trials: two (Bateman & Fonagy, 1999; Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999) showed improvement in a number of outcomes measured for patients with borderline personality disorder; and Piper *et al.*, (1993), although showing improvement in a number of outcomes, had a large proportion of non-personality disordered individuals. Thus, in this trial it is difficult to determine if outcomes were attributable to personality disordered patients.

A positive effect was reported for the outcome categories of change in service usage in one of the mixed disciplines trials (Bateman & Fonagy, 1999); for change in symptoms in two of the mixed disciplines trials (Bateman & Fonagy, 1999; Piper *et al.*, 1993); and for change in social functioning and/or disability in two of the mixed disciplines trials (Bateman & Fonagy, 1999; Piper *et al.*, 1993). The one nursing only trial reported insufficient data to assess effect (O'Brien *et al.*, 1985).

No effect was reported for the outcome categories of change in service usage in one of the mixed disciplines trials (Bateman & Fonagy, 1999); for change in symptoms in one of the mixed disciplines trials (Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999); and for change in social functioning and/or disability in one of the mixed disciplines trials (Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999).

In relation to the outcome categories more specifically:

- **change in service usage** - Bateman & Fonagy (1999) reported a significant reduction in both the number and duration of inpatient admissions and the use of psychotropic medication. Marziali *et al.* (1999) reported no significant difference in the level of service utilisation.
- **change in symptoms** - Bateman & Fonagy (1999) reported a significant reduction in the level of depression (large effect¹), anxiety (large effect for state anxiety and medium effect for trait anxiety) and general symptoms of distress (small effect for global severity and less than a small effect for positive symptoms). Piper *et al.* (1993) reported a significant reduction in psychiatric symptoms (large effect for mood level and small effect for mood reactivity²). Munroe-Blum & Marziali (1995) and Marziali *et al.* (1999) reported no significant difference in clinical symptom status.
- **change in social functioning and/or disability** - Bateman & Fonagy (1999) reported a significant reduction in both the frequency of suicide attempts and acts of self-harm, and a significant increase in interpersonal function (large effect) and social adjustment. Piper *et al.* (1993) reported a significant increase in self-esteem (large effect), life satisfaction (large effect) and interpersonal function (large effect for positive interpersonal behaviour; medium effect for

¹ Bateman & Fonagy (1999) effect sizes relate to end of active treatment.

² Piper *et al.* (1993) effect sizes relate to end of follow-up period.

social dysfunction, family dysfunction and number of friends; small effect for sexual dysfunction, emotional reliance, and pathological attachment; and less than a small effect for satisfaction with friends), and a significant reduction in the severity of disturbance (large effect rated by assessor and less than a small effect rated by patient) and defensive functioning (medium effect for adaptive defences and small effect for maladaptive defences). Munroe-Blum & Marziali (1995) and Marziali *et al.* (1999) reported no significant difference in both behavioural dysfunction and social performance

In relation to the actual intervention tested through the three mixed disciplines trials: Bateman & Fonagy (1999) used a mixture of individual and group psychotherapy, along with therapeutic milieu, compared with treatment as usual: whereas, Munroe-Blum & Marziali (1995) and Marziali *et al.* (1999) compared group with individual psychotherapy and Piper *et al.* (1993) compared group psychotherapy with delayed treatment. Overall for each type of intervention, in relation to any one outcome grouping, there is only evidence of positive effect from one trial.

In two studies (Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999; Piper *et al.*, 1993) therapists were formally trained to carry out the intervention: in one study reliability of the training was measured (Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999). Three studies measured treatment fidelity through supervision (Bateman & Fonagy, 1999; Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999) and compliance (O'Brien *et al.*, 1985).

Therefore, for each outcome category there is only evidence from one mixed disciplines RCT to show positive effect for each type of intervention. No nursing only study has sufficient evidence to show positive effect. Positive effects occurred for change in service usage in one of the mixed disciplines trials; for change in symptoms in two of the mixed disciplines trials; and for change in social functioning and/or disability in two of the mixed disciplines trials. However, it remains to be seen if these improvements will be maintained at long-term follow-up.

7.1.3 *Non-randomised controlled trials*

7.1.3.1 *Description of non-randomised controlled trials*

Four non-randomised controlled trials were included in the review. Table 8 summarises the population and sample characteristics, and attrition rates. Table 9 summarises the nature of the intervention, control and who carried out the intervention for the four studies. Table 10 summarises the results.

Chiesa *et al.* (1996) evaluated the impact of specialised inpatient psychosocial treatment for 52 patients with severe personality disorder. The aim of the study was to evaluate the impact of a year's inpatient psychosocial treatment for a group of patients with personality disorders. The null hypothesis was that, "if psychosocial treatment is not effective, substantial modifications in the misuse of health service resources should not occur in the patients under study". Outcomes measured were: (1) use of medical, surgical and psychiatric services in the year following discharge from the hospital; (2) use of psychotropic medication; (3) cigarette and alcohol consumption; (4) employment. The outcomes were assessed using two measures: (1) the Service Utilisation Structured Interview (SUSI) - gathers information on level of inpatient and outpatient medical and psychiatry service utilisation, laboratory investigations, etc, 12 months prior to the interview; (2) the Cassel Baseline Questionnaire (CBQ) - transcribes in a standardised way information in the hospital casenotes (socio-demographic data, premorbid experiences and functioning, degree of psychopathology, illness course). Data were collected from the pre-treatment (control) group in relation to the 12 months prior to admission and for the post-treatment (intervention) group for the period 12 months following discharge. Thus, follow-up for the post-treatment (intervention) group was 12 months post discharge.

Chiesa & Fonagy (2000) prospectively compared the effectiveness of two models of psychosocial intervention for 90 patients with personality disorder at the same specialised inpatient unit. They hypothesised that the phased and longer-term two-stage model would be more effective than the one-stage model for treating patients with BPD. The primary outcome measured was multi-dimensional functioning at intake and six, 12 and 24 months: (1) symptomatic distress - self-report Symptom Checklist SCL-90 (general severity index used [GSI]); (2) Interviewer-based Social Adjustment Scale SAS (dimensions of work, family of origin, marriage, sex, social leisure); (3) clinician rated Global Assessment Scale GAS (compartmentalises general mental health in accordance with levels of general functioning); and (4) borderline status. Follow-up was for 24 months including the treatment period. However, results are only reported up to 12 month follow-up

Cremin *et al.* (1995) reported on a new intervention with ten patients with severe personality disorder, which was intended to increase therapeutic engagement and decrease self-harm behaviour within a nursing development unit. The study aimed to evaluate retrospectively with a group of patients the impact of individual challenge over time, hypothesising that the use of a psychodynamic perspective in the form of a nursing challenge, on the dysfunctional behaviours and recurrent interpersonal difficulties experienced by this group of patients would (1) increase the possibility of therapeutic engagement with them and (2) decrease self-harming behaviour. The two outcomes were assessed using measures of: (1) Ego-competency Assessment (x3 daily for 3 weeks after

admission); (2) suicide intent; (3) self-harm lethality; (4) depression; (5) hopelessness. Follow-up was for a period of 3 weeks post-admission.

Meares *et al.* (1999) prospectively compared the clinical outcomes of patients with borderline personality disorder in an out-patient department who had received out-patient psychotherapy for 1 year with borderline personality disorder patients who received no formal psychotherapy for the same period. The outcome measured was the number of DSM-III criteria for borderline personality disorder measured by clinical interview pre- and post-intervention using a 27 point scale made up of all items in each criterion category for DSM-III BPD which was constructed for the study. Each interview was conducted by both a psychiatrist and research psychologist. Follow-up, including treatment period, for the intervention group was 12 months and the control group an average of 17.1 months.

7.1.3.2 Scope of non-randomised controlled trials

In one study the intervention was performed solely by a nurse (Cremin *et al.*, 1995) and in the remaining three the intervention was by mixed disciplines, with nurses delivering the intervention to varying degrees.

In the three mixed disciplines studies the experimental treatment was psychotherapy (Chiesa *et al.*, 1996; Chiesa & Fonagy, 2000; Meares *et al.*, 1999). In two this consisted of individual and group psychotherapy run alongside psychosocial nursing within a therapeutic milieu (Chiesa *et al.*, 1996; Chiesa & Fonagy, 2000) and in Meares *et al.* (1999) it was individual. In the nursing only study (Cremin *et al.*, 1995) the experimental intervention was nursing challenge.

The comparative group in two studies was retrospective (Chiesa *et al.*, 1996; Cremin *et al.*, 1995). In the other two studies comparison was prospective with Chiesa & Fonagy (2000) comparing a new programme of treatment with an existing one and Meares *et al.* (1999) comparing with a waiting list control group.

Two studies included patients with borderline personality disorder (70% in Chiesa & Fonagy, 2000; all in Meares *et al.*, 1999); both confirming DSM diagnosis. The remaining two studies simply reported personality disorder (Chiesa *et al.*, 1996) or severe personality disorder (Cremin *et al.*, 1995). It appeared that the researchers/program staff recruited patients in all four studies. A high percentage of patients were female in two studies (Chiesa *et al.*, 1996; Chiesa & Fonagy, 2000). Samples sizes ranged from ten to 90.

The four studies measured outcomes from four of the standard outcome categories, as well as the "other" category:

¹ Chiesa *et al.* (1996)

² Chiesa & Fonagy (2000)

³ Cremin *et al.* (1995)

⁴ Meares *et al.* (1999)

- ***change in service usage*** (the use of medical, surgical and psychiatric services¹, use of psychotropic medication¹);
- ***change in personality disorder status*** (borderline status², DSM criteria for personality disorder⁴);
- ***change in symptoms*** (symptomatic distress²);
- ***change in social functioning and/or disability*** (self-harm behaviour³, general level of functioning², social adjustment², employment¹);
- ***other*** (therapeutic engagement³, cigarette and alcohol consumption¹).

There was a wide range in the length of follow-up: from three weeks post admission to 17 months (which included treatment time).

Table 8: Population and sample characteristics of non-randomised controlled trials

Study	Population and sampling method	Entry/exclusion criteria	Size of intervention and control groups	Attrition
Chiesa <i>et al.</i> (1996)	<p>Post-treatment/intervention group – 26 patients selected from the 52 discharged from the hospital from May 1991 to December 1992</p> <p>Pre-treatment/control group – 26 consecutive admissions from June 1993 to May 1994</p>	Consented to take part in the study	<p>Post-treatment/intervention group n=26</p> <p>Pre-treatment/control group n=26</p>	None reported
Chiesa & Fonagy (2000)	<p>Population 135 consecutive admissions to the adult unit of the hospital between January 1993 and July 1997. 18 (13.1%) refused consent; 12 (15.7%) withdrew immediately after signing consent form; a further 11 (14.4%) withdrew after baseline battery completion.</p> <p>Sampling method Allocated to treatment groups according to criteria based on geographical treatment accessibility</p>	<p>Entry: Age 18-55 Good command of the English language IQ above 90 DSM-III-R Axis II diagnosis of personality disorder</p> <p>Exclusion: A previous diagnosis of schizophrenia or delusional (paranoid) disorder Previous continuous stay in hospital for two years or more Evidence of organic brain damage Involvement in criminal proceedings for violent crimes</p> <p>All these criteria are also the clinical selection criteria for admission to the Cassel Hospital.</p> <p>Two patients admitted over the five year period were excluded from the study owing to organic brain pathology</p>	<p>2 stage treatment group n=44 1 stage treatment/control group n=46</p> <p>NB: Represents the reported sample sizes in the results (figures also do not add up as reported in the paper)</p>	<p>2 stage treatment group n=1 1 stage treatment/control group n=4</p> <p>Reported that they used an “intent-to-treat” design so subjects were recalled or traced for assessments Data for the n=4 from the 1 stage treatment/control group were not available (committed suicide prior to 6 month assessment) thus were excluded from multivariate analysis but included in study of reliable change as having deteriorated on the Global Assessment Scale</p>

Table 8 (cont): Population and sample characteristics of non-randomised controlled trials

Study	Population and sampling method	Entry/exclusion criteria	Size of intervention and control groups	Attrition
Cremin <i>et al.</i> (1995)	<p>Study Population All referrals during a three month period were considered for inclusion – high number of referrals were not accepted for treatment limiting potential population to Meares <i>et al.</i> (1999) Patients admitted to the unit prior to the study – out of 20 consecutive patients only 6 casenotes were of sufficient detail</p> <p>Sampling method Intervention group Referral for admission to unit Gave informed consent</p> <p>Comparison/control group Admitted as inpatients to the unit prior to the study (case note analysis – not random allocation)</p>	<p>Referral for admission to unit Gave informed consent Persistent user of typical psychiatric care with a history self-harm prior to admission (both groups)</p>	<p>Intervention group n=4 Comparison/control group n=6</p>	<p>None reported</p>
Meares <i>et al.</i> (1999)	<p>Population Referrals to Westmead hospital</p> <p>Sampling method Matter of chance whether or not entered into treatment or control group. Those patients who had to wait did so because of individual circumstances (e.g. they applied when no therapists were available)</p>	<p>DSM III criteria for BPD</p>	<p>Intervention group: n=48 Comparison/control group: n=30 REDUCED DATASET REPORTED Intervention group: n=30 Comparison/control group: n=30</p>	<p>Intervention group: n=8 in first 3 months n=3 could not be contacted at 12 month follow-up n=7 considered unethical to stop treatment</p>

Table 9: Description of intervention for non-randomised controlled trials

Study	Nature of intervention	Control	Who carried out the intervention
Chiesa <i>et al.</i> (1996)	Formal group and individual psychotherapy, and the experience of living in a therapeutic milieu.	Pre-treatment group of concurrent admissions to the unit	Inpatient psychosocial treatment programme mainly managed by ward based nurses Formal psychotherapy by medical and non-medical psychotherapist under supervision.
Chiesa & Fonagy (2000)	Two stage programme Hospital stay 6 months with sociotherapeutic psychosocial treatment and twice-weekly individual therapy. Followed by 12-18 months of outpatient group psychotherapy and 6 months of concurrent community outreach nursing, both provided by Cassel staff. During outreach stage patients are actively supported in communicating with other agencies in the community.	One stage programme Hospital stay for 11-16 months with sociotherapeutic psychosocial treatment and twice-weekly individual therapy. After discharge responsibility is with the patient for setting up further treatment or seeking support.	Inpatient psychosocial treatment programme mainly managed by ward based nurses Formal psychotherapy by medical and non-medical psychotherapist under supervision.
Cremin <i>et al.</i> (1995)	Use of the challenge on the day of admission The charge nurse/researcher and a registrar presented the findings of their pre-admission assessment to a consultant psychotherapist, who developed the challenge. Challenges were developed under a number of headings designed to anticipate the most likely unconscious fantasies and defensive enactments for each patient. The intervention was designed to help nurses anticipate each patient's compulsion to repeated self-harm and identify the roles they would be drawn to enact. It would enable nurses to formulate a nursing response so that the treatment and care survived the patient's unconscious attempts to involve the nurses in fruitless enactments.	Retrospective group of patients admitted to unit prior to implementation of intervention	Primary nurse

Table 9 (cont): Description of intervention for non-randomised controlled trials

Study	Nature of intervention	Control	Who carried out the intervention
Meares <i>et al.</i> (1999)	1 hours interpersonal-psychodynamic psychotherapy twice weekly for 12 months	The first 30 patients on the waiting list who had been waiting a year or more. They had treatment as usual during this period (supportive psychotherapy, crisis intervention only, cognitive therapy, pharmacotherapy). Some were hospitalised. There was no typical course of treatment	20 trainee psychotherapists under intensive audiotaped supervision (mainly psychiatrists in training; 2 senior psychiatric nurses, and 1 psychologist)

Table 10: Results from non-randomised controlled trials

Study	Results																																																																						
Chiesa <i>et al.</i> (1996)	<p>Use of medical, surgical and psychiatric services</p> <p>Visits to A&E (pre-treatment/control group mean=1.4, Post-treatment group mean=0.38, p<0.02)</p> <p>Admission to general hospital for medical or surgical intervention (Pre-treatment group mean=1.85, Post-treatment group mean=0.04, p<0.01)</p> <p>Laboratory investigations (Pre-treatment group mean=2.35, Post-treatment group mean=0.88, p<0.04)</p> <p>No significant difference between use of outpatient medical and surgical facilities and visits to GP</p> <p>Most striking psychiatric readmissions (Pre-treatment group mean=30.85, Post-treatment group mean=0.19, p<0.01)</p> <p>Outpatient psychiatric care (Pre-treatment group mean=10.08, Post-treatment group mean=2.81, p<0.01)</p> <p>Although post-treatment group uses on average two-thirds less social worker or CPN help and half of psychotherapeutic input not statistically significant</p> <p>Social benefits of treatment</p> <p>Number of weeks in employment (Pre-treatment group mean=3.96, Post-treatment group mean=17.58)</p> <p>Number of cigarettes smoked per day (Pre-treatment group mean=10.56, Post-treatment group mean=5.4, p=0.054)</p> <p>Amount of alcohol intake in units per week (Pre-treatment group mean=20.58, Post-treatment group mean=7.17, p=0.053)</p> <p>Reduction of use of minor tranquillisers and anti-depressants (but not major tranquillisers) for the post-treatment group but not significant</p> <p>Cost benefits</p> <p>Reports on major costs savings in relation to those treated at the Cassel of £7,423 per patient</p> <p>Health service utilisation: low and high users</p>																																																																						
Chiesa & Fonagy (2000)	<table border="1"> <thead> <tr> <th data-bbox="407 855 622 887">Outcome measure</th> <th colspan="2" data-bbox="631 855 846 887">One stage group</th> <th colspan="2" data-bbox="855 855 1070 887">Two stage group</th> </tr> <tr> <th data-bbox="407 887 622 919"></th> <th data-bbox="631 887 721 919">Mean</th> <th data-bbox="730 887 846 919">SD</th> <th data-bbox="855 887 945 919">Mean</th> <th data-bbox="954 887 1070 919">SD</th> </tr> </thead> <tbody> <tr> <td colspan="5" data-bbox="407 919 1070 951">GSI score</td> </tr> <tr> <td data-bbox="407 951 622 983">Intake</td> <td data-bbox="631 951 721 983">2.07</td> <td data-bbox="730 951 846 983">0.60</td> <td data-bbox="855 951 945 983">1.86</td> <td data-bbox="954 951 1070 983">0.82</td> </tr> <tr> <td data-bbox="407 983 622 1015">6 months</td> <td data-bbox="631 983 721 1015">1.80</td> <td data-bbox="730 983 846 1015">0.52</td> <td data-bbox="855 983 945 1015">1.49</td> <td data-bbox="954 983 1070 1015">0.83</td> </tr> <tr> <td data-bbox="407 1015 622 1046">12 months</td> <td data-bbox="631 1015 721 1046">1.63</td> <td data-bbox="730 1015 846 1046">0.63</td> <td data-bbox="855 1015 945 1046">1.39</td> <td data-bbox="954 1015 1070 1046">0.91</td> </tr> <tr> <td colspan="5" data-bbox="407 1046 1070 1078">SAS score</td> </tr> <tr> <td data-bbox="407 1078 622 1110">Intake</td> <td data-bbox="631 1078 721 1110">2.68</td> <td data-bbox="730 1078 846 1110">0.45</td> <td data-bbox="855 1078 945 1110">2.56</td> <td data-bbox="954 1078 1070 1110">0.54</td> </tr> <tr> <td data-bbox="407 1110 622 1142">6 months</td> <td data-bbox="631 1110 721 1142">2.55</td> <td data-bbox="730 1110 846 1142">0.34</td> <td data-bbox="855 1110 945 1142">2.37</td> <td data-bbox="954 1110 1070 1142">0.47</td> </tr> <tr> <td data-bbox="407 1142 622 1174">12 months</td> <td data-bbox="631 1142 721 1174">2.46</td> <td data-bbox="730 1142 846 1174">0.42</td> <td data-bbox="855 1142 945 1174">2.17</td> <td data-bbox="954 1142 1070 1174">0.58*</td> </tr> <tr> <td colspan="5" data-bbox="407 1174 1070 1206">GAS score</td> </tr> <tr> <td data-bbox="407 1206 622 1238">Intake</td> <td data-bbox="631 1206 721 1238">45.78</td> <td data-bbox="730 1206 846 1238">6.76</td> <td data-bbox="855 1206 945 1238">46.70</td> <td data-bbox="954 1206 1070 1238">6.48</td> </tr> <tr> <td data-bbox="407 1238 622 1270">6 months</td> <td data-bbox="631 1238 721 1270">49.16</td> <td data-bbox="730 1238 846 1270">7.65</td> <td data-bbox="855 1238 945 1270">53.83</td> <td data-bbox="954 1238 1070 1270">9.43*+</td> </tr> <tr> <td data-bbox="407 1270 622 1302">12 months</td> <td data-bbox="631 1270 721 1302">51.09</td> <td data-bbox="730 1270 846 1302">9.66</td> <td data-bbox="855 1270 945 1302">58.71</td> <td data-bbox="954 1270 1070 1302">13.76**++</td> </tr> </tbody> </table> <p data-bbox="407 1302 1070 1334">post hoc contrasts of groups * p<0.05 **p<0.01</p> <p data-bbox="407 1334 1070 1361">post hoc within-groups contrasts + p<0.05 ++ p<0.001</p>	Outcome measure	One stage group		Two stage group			Mean	SD	Mean	SD	GSI score					Intake	2.07	0.60	1.86	0.82	6 months	1.80	0.52	1.49	0.83	12 months	1.63	0.63	1.39	0.91	SAS score					Intake	2.68	0.45	2.56	0.54	6 months	2.55	0.34	2.37	0.47	12 months	2.46	0.42	2.17	0.58*	GAS score					Intake	45.78	6.76	46.70	6.48	6 months	49.16	7.65	53.83	9.43*+	12 months	51.09	9.66	58.71	13.76**++
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Table 10 (cont): Results from non-randomised controlled trials

Study	Results																																																																						
Chiesa & Fonagy (2000) Continued	<p>Treatment effects</p> <p>Overall improvement across all variables is indicated by the significant time factor in the MANOVA (Wilks's $\lambda=0.565$, $F=10.64$, $df=6,83$, $p<0.0001$) – repeated measures ANOVA (time as repeated measures variable) GAS ($F=29.6$, $df=2,176$, $p<0.0001$); GSI ($F=23.4$, $df=2,176$, $p<0.0001$); SAS ($F=19.7$, $df=2,176$, $p<0.0001$)</p> <p>Multivariate group effect (Wilks's $\lambda=0.891$, $F=3.49$, $df=3,86$, $p<0.02$) – ANOVA GAS ($F=9.2$, $df=1,88$, $p<0.004$); GSI ($F=4.4$, $df=1,88$, $p<0.06$); SAS ($F=6.2$, $df=1,88$, $p<0.2$)</p> <p>Post hoc contrasts – mean scores on GAS significantly higher for two stage group at 6 and 12 months and SAS mean scores for two stage group significantly lower at 12 months</p> <p>Group by time interaction (Wilks's $\lambda=0.882$, $F=1.86$, $df=6,83$, NS) – ANOVA GAS ($F=4.4$, $df=2,176$, $p<0.02$). Separate pairwise comparisons for the two groups revealed one stage significant group differences from baseline at 12 months ($p<0.02$) and two stage differences at 6 months ($p<0.006$) and 12 months ($p<0.001$)</p> <p>Reliable change</p> <table border="1" data-bbox="407 644 1048 1090"> <thead> <tr> <th data-bbox="407 644 622 676">Outcome measure</th> <th colspan="2" data-bbox="631 644 846 676">One stage group</th> <th colspan="2" data-bbox="855 644 1048 676">Two stage group</th> </tr> <tr> <th data-bbox="407 676 622 708"></th> <th data-bbox="631 676 676 708">N</th> <th data-bbox="698 676 743 708">%</th> <th data-bbox="855 676 878 708">n</th> <th data-bbox="900 676 945 708">%</th> </tr> </thead> <tbody> <tr> <td data-bbox="407 708 533 740">GSI result</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td data-bbox="407 740 519 772">Improved</td> <td data-bbox="631 740 654 772">24</td> <td data-bbox="698 740 743 772">52</td> <td data-bbox="855 740 878 772">24</td> <td data-bbox="900 740 945 772">55</td> </tr> <tr> <td data-bbox="407 772 519 804">Unchanged</td> <td data-bbox="631 772 654 804">21</td> <td data-bbox="698 772 743 804">46</td> <td data-bbox="855 772 878 804">14</td> <td data-bbox="900 772 945 804">32</td> </tr> <tr> <td data-bbox="407 804 533 836">Deteriorated</td> <td data-bbox="631 804 654 836">1</td> <td data-bbox="698 804 743 836">2</td> <td data-bbox="855 804 878 836">6</td> <td data-bbox="900 804 945 836">14</td> </tr> <tr> <td data-bbox="407 836 555 868">SAS result*</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td data-bbox="407 868 519 900">Improved</td> <td data-bbox="631 868 654 900">7</td> <td data-bbox="698 868 743 900">15</td> <td data-bbox="855 868 878 900">17</td> <td data-bbox="900 868 945 900">39</td> </tr> <tr> <td data-bbox="407 900 519 932">Unchanged</td> <td data-bbox="631 900 654 932">38</td> <td data-bbox="698 900 743 932">83</td> <td data-bbox="855 900 878 932">24</td> <td data-bbox="900 900 945 932">55</td> </tr> <tr> <td data-bbox="407 932 533 963">Deteriorated</td> <td data-bbox="631 932 654 963">1</td> <td data-bbox="698 932 743 963">2</td> <td data-bbox="855 932 878 963">3</td> <td data-bbox="900 932 945 963">7</td> </tr> <tr> <td data-bbox="407 963 577 995">GAS result**</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td data-bbox="407 995 519 1027">Improved</td> <td data-bbox="631 995 654 1027">8</td> <td data-bbox="698 995 743 1027">17</td> <td data-bbox="855 995 878 1027">19</td> <td data-bbox="900 995 945 1027">43</td> </tr> <tr> <td data-bbox="407 1027 519 1059">Unchanged</td> <td data-bbox="631 1027 654 1059">37</td> <td data-bbox="698 1027 743 1059">80</td> <td data-bbox="855 1027 878 1059">25</td> <td data-bbox="900 1027 945 1059">57</td> </tr> <tr> <td data-bbox="407 1059 533 1091">Deteriorated</td> <td data-bbox="631 1059 654 1091">5</td> <td data-bbox="698 1059 743 1091">10</td> <td data-bbox="855 1059 878 1091">0</td> <td data-bbox="900 1059 945 1091">0</td> </tr> </tbody> </table> <p data-bbox="407 1091 600 1123">$p<0.05$ **$p<0.001$</p> <p>Patients in two stage group more likely to meet the stringent RCI criteria for improvement GAS (Kendalls $\tau_b=0.34$, $df=2$, $p<0.001$) SAS (Kendalls $\tau_b=0.20$, $df=2$, $p<0.05$)</p> <p>According to the criteria for improvement the two stage group were significantly more likely to have improved (39% versus 18%, $\chi^2=4.98$, $df=1$, $p<0.05$).</p>	Outcome measure	One stage group		Two stage group			N	%	n	%	GSI result					Improved	24	52	24	55	Unchanged	21	46	14	32	Deteriorated	1	2	6	14	SAS result*					Improved	7	15	17	39	Unchanged	38	83	24	55	Deteriorated	1	2	3	7	GAS result**					Improved	8	17	19	43	Unchanged	37	80	25	57	Deteriorated	5	10	0	0
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Unchanged	37	80	25	57																																																																			
Deteriorated	5	10	0	0																																																																			

Table 10 (cont): Results from non-randomised controlled trials

Study	Results																				
Chiesa & Fonagy (2000) Continued	<p>Borderline status and outcome</p> <p>Of patients with BPD diagnoses. In one stage group 13.5% improved and in two-stage group 46.7% improved. Logistic regression to determine if improvement rates for BPD were different from non-BPD in the two groups (B=2.21, sd=1.07, df=1, p<0.05)</p>																				
Cremin <i>et al.</i> (1995)	<p>Ego-competency scales</p> <p>Intervention group:</p> <p>Comparison of individual scoring of impulse control, judgement, mood and self-perception revealed almost identical patterns in each area – suggesting co-variation among their ego-competencies at times when they engage in self-destructive and dangerous behaviour</p> <p>When compared with pre-admission staff rating and patient self-rating three showed more optimal functioning on impulse control, judgement, mood and self-perception during the first week of admission</p> <p>During weeks two and three functioning returned to pre-admission levels – confirmed by patient’s self-rating scores</p> <p>Comparison group:</p> <p>Five out of the six patients self-harmed within 3 days of admission; 1 within hours, 2 on day 2, and 2 on day 3.</p> <p>Three of these five patients experienced a reducing pattern of self-harm over the three week period</p> <p>Summaries of patients’ behaviour</p> <p>Intervention group:</p> <p>Nurses rated and summarised weekly for 3 weeks, aspects of the patients’ behaviour, involvement in therapeutic activity and compliance with the overall unit programme</p> <p>Only data of clinical significance to nursing practice were incidents of self-harm</p> <p>Two patients with histories of regular cutting showed fewer incidents in the first week and more in weeks two and three</p>																				
Meares <i>et al.</i> (1999)	<p>Intervention group 30% no longer met criteria for BPD whereas the control group showed no change</p> <p>Intervention group DSM baseline mean=17.4 (sd=3.37) and at follow-up mean=11.0 (sd=4.7)</p> <p>Control DSM baseline mean=13.5 (sd=2.8) and at follow-up mean=13.4 (sd=3.4)</p> <table border="1" data-bbox="407 1050 1272 1177"> <thead> <tr> <th>Variable</th> <th>B*</th> <th>SE B**</th> <th>T</th> <th>P value</th> </tr> </thead> <tbody> <tr> <td>Cohort</td> <td>4.78</td> <td>1.33</td> <td>3.606</td> <td>0.0007</td> </tr> <tr> <td>DSM at 0</td> <td>-0.44</td> <td>0.19</td> <td>-2.28</td> <td>0.03</td> </tr> <tr> <td>Constant</td> <td>0.76</td> <td>3.44</td> <td>0.22</td> <td>0.83</td> </tr> </tbody> </table> <p>Change in DSM score from baseline to follow-up holding other variable constant ** standard error of change in DSM score</p> <p>The change DSM score depends both on the baseline DSM score (p=0.03) and treatment (p=0.0007). Individuals with higher baseline DSM scores irrespective of group membership have greater reduction in DSM scores at follow-up</p> <p>Adjusting for baseline DSM scores, the DSM follow-up scores of the intervention group decreased by an average of 4.78 more than the control over the 12 month period</p>	Variable	B*	SE B**	T	P value	Cohort	4.78	1.33	3.606	0.0007	DSM at 0	-0.44	0.19	-2.28	0.03	Constant	0.76	3.44	0.22	0.83
Variable	B*	SE B**	T	P value																	
Cohort	4.78	1.33	3.606	0.0007																	
DSM at 0	-0.44	0.19	-2.28	0.03																	
Constant	0.76	3.44	0.22	0.83																	

Table 11: Summary of methodological quality of non-randomised controlled trials

Quality measure	Chiesa <i>et al.</i> (1996)	Chiesa & Fonagy (2000)	Cremin <i>et al.</i> (1995)	Meares <i>et al.</i> (1999)
Baseline comparability	Met	Met	Not reported	Met
Eligibility criteria	Partially met	Met	Met	Met
Blinding of assessors	Not met	Partially met (patient self-report)	Partially met (patient self-report)	Not met
Was follow-up longer enough for outcomes to occur	Met	Met	Not met	Met
Were drop out rates similar for both groups	Yes	Yes	Yes	Yes
Completeness of follow-up	Met	Not met	Met	Not met
Intention to treat analysis	No	Yes	No	No
Power calculation	No	No	No	No

7.1.3.3 Quality of non-randomised controlled trials

Methodological quality of non-randomised controlled trials was assessed using criteria suggested by the NHS Centre for Reviews and Dissemination (1996) and Clarke and Oxman (2000). A summary of the quality for the studies can be found in Table 11.

Chiesa *et al.* (1996) reported no significant differences on any of the baseline measures between the two groups, except for assaultiveness. Chiesa & Fonagy (2000) reported both groups were well matched on both demographic and clinical variables. Meares *et al.* (1999) reported both groups were well matched on demographic variables. Cremin *et al.* (1995) gave no data on the characteristics.

In three of the four studies eligibility criteria were stated for inclusion (Chiesa *et al.*, 1996; Cremin *et al.*, 1995; Meares *et al.*, 1999) and in the remaining both inclusion and exclusion were specified (Chiesa & Fonagy, 2000). Blinding of assessors was partially met in two studies as they used at least one patient self-report as an outcome measure (Chiesa & Fonagy, 2000; Cremin *et al.*, 1995). Completeness of follow-up was not met in two studies (Chiesa & Fonagy, 2000; Meares *et al.*, 1999), 95% and 77% respectively. One study (Chiesa & Fonagy, 2000) reported that they used intention to treat analysis. However, Chiesa *et al.* (1996) and Cremin *et al.* (1995) reported results for complete cohorts. None of the studies gave a power calculation.

Overall, the methodological quality of the non-randomised controlled trials has to be considered moderate in terms of quality of baseline and drop-out rate comparability and completeness of follow-up. However, all studies are susceptible to performance and detection bias.

7.1.3.4 Effect sizes from non-randomised controlled trials

Where possible effect sizes and the percentage non-overlap of treated and control scores were calculated according to the formula provided in Section 4.5. Effect sizes could be calculated for one of the four studies (Chiesa & Fonagy, 2000). This was one of the mixed disciplines intervention studies. Table 12 summarises the effect sizes and percentage non-overlap from the study.

Outcome	Effect size	% non-overlap
Change in social functioning and/or disability		
Social adjustment ¹	0.69	over 38.2
General level of functioning ¹	0.79	over 43.0
Change in symptoms		
Symptomatic distress ¹	0.38	over 21.3

¹Chiesa & Fonagy, 2000

Table 12: Summary of effect sizes from non-randomised controlled trials

7.1.3.5 *Synthesis of non-randomised controlled trials*

It remains difficult to draw any firm conclusions from these four non-randomised controlled trials. They can all be considered representative of the population from which they were drawn, as in all four trials the sample included a high proportion of all patients admitted during the trial period. However, in Cremin *et al.* (1995), the one nursing only intervention trial, the sample size was very small and the follow-up for a relatively short period of time.

A positive effect was reported for the outcome categories of change in service usage in one of the mixed disciplines trials (Chiesa *et al.*, 1999); for change in personality disorder status for two of the mixed disciplines trials (Chiesa & Fonagy, 2000; Meares *et al.*, 1999); change in symptoms in one of the mixed disciplines trials (Chiesa & Fonagy, 2000); and for change in social functioning and/or disability in one of the mixed disciplines trials (Chiesa & Fonagy, 2000). The one nursing only trial (Cremin *et al.*, 1995) reported insufficient data to assess effect.

No significant effect was reported for the outcome categories of change in service usage in one of the mixed disciplines trials (Chiesa *et al.*, 1996); and for change in social functioning and/or disability in the one nursing only trial (Cremin *et al.*, 1995).

In relation to the outcome categories more specifically:

- ***change in service usage*** - Chiesa *et al.* (1996) reported a significant reduction in the use of medical, surgical and psychiatric services (visits to A&E, admission to general hospital for medical or surgical intervention, laboratory investigations, psychiatric readmission, and outpatient psychiatric care). Chiesa *et al.* (1996) reported no significant difference in the use of psychotropic medication.
- ***change in personality disorder status*** - Chiesa & Fonagy (2000) reported a significant reduction in borderline status and Meares *et al.* (1999) in the number of DSM criteria for personality disorder.
- ***change in symptoms*** - Chiesa & Fonagy (2000) reported a significant reduction in symptomatic distress (small effect).
- ***change in social functioning and/or disability*** - Chiesa & Fonagy (2000) reported a significant reduction in general level of functioning (medium effect), and an increase in social adjustment (medium effect) and employment.

In relation to the actual intervention tested through the three mixed disciplines trials: Chiesa *et al.* (1996) used a mixture of group and individual psychotherapy along with therapeutic milieu, compared with a pre-treatment group; Chiesa & Fonagy (2000) used a mixture of group and individual psychotherapy, along with therapeutic milieu during a six month hospital stay, followed outpatient group psychotherapy and psychosocial nursing, compared with a mixture of group and individual psychotherapy along with therapeutic milieu during a 12-18 month hospital stay and no community support; and Meares *et al.* (1999) used individual psychotherapy compared with treatment as usual. Overall the above outcomes indicate a reduction in service usage and symptoms,

and an increase in social functioning from one mixed disciplines trial. A reduction in personality disorder status was found in two of the mixed disciplines trials. However, there is no clear evidence from more than one non-randomised trial to suggest which intervention is best.

In two studies (Cremin *et al.*, 1995; Meares *et al.*, 1999) it was reported formal training was given to carry out the intervention. One study reported it measured treatment fidelity through supervision (Meares *et al.*, 1999).

Therefore, as with the randomised controlled trials there is only evidence from the non-randomised controlled trials to show positive effects of mixed disciplines intervention for patients with personality disorder. For only change in personality disorder status is there evidence from more than one mixed disciplines trial. No nursing only trial has sufficient evidence to show positive effect. Positive effects occurred for change in service usage in one mixed disciplines trial; for change in personality disorder status in two mixed disciplines trials; change in symptoms in one mixed disciplines trial; and for change in social functioning and/or disability in one mixed disciplines trial.

7.1.4 Before-and-after studies

7.1.4.1 Description of before-and-after studies

Seven before-and-after studies were included in the review. Nehls (1991) and Nehls (1992), in two papers reported different data from the same study. Where possible these will be reported as one study, however, as they report distinctly different components at times this is difficult. Table 13 summarises the population and sample characteristics, and attrition rates. Table 14 summarises the nature of the intervention and who carried out the intervention for the seven studies. Table 15 summarises the results.

Budman *et al.* (1996) reports on an exploratory study into time-limited (18 months long) group therapy for 49 outpatients, mostly diagnosed with DSM III-R personality disorders in the Harvard Community Mental Health Plan, a large New England health maintenance organisation with over 500,000 members. A number of patient functioning outcomes were measured: (1) patient symptomatic distress (self-report SCL-90 baseline and 3 monthly); (2) interpersonal functioning (self-report IIP baseline and 3 monthly); (3) social functioning (self-report SAS baseline and 6 monthly); (4) defensive style (self-report DSQ baseline and 6 monthly); (5) perceived social support (self-report People in Your Life Scale [PiYL] baseline and 6 monthly); (6) self-esteem (self-report self-esteem scale [SE] baseline and 6 monthly); (7) big 5 personality factors of extraversion, agreeableness, emotional stability, conscientiousness, openness (50 Bipolar Self-rating Scales [50-BSRS] baseline and 6 monthly); (8) reaction to the group experience and patients assessed benefit (Patient Evaluation of Treatment [PET] 3 monthly); (9) importance and severity of problems (Target Problem Measure clinical interview baseline and 3 monthly); (10) psychiatric disturbance (therapist rated GAS 6 monthly); and (11) personality disorder (clinician rated Personality Disorder Examination [PDE] baseline and completion of treatment at 18 months). Follow-up was for 18 months (completion of treatment).

Chiesa (2000) investigated aspects of adjustment to the therapeutic community milieu in a group of 81 personality disordered patients. The aims of the study were: (1) to identify pre-admission characteristics predictive of initial therapeutic community adjustment in a group of personality disordered patients admitted for a period of psychosocial treatment at the Cassel Hospital; (2) to study the relationship between hospital adjustment and external social adjustment; (3) to investigate the hypothesis that hospital adjustment and internally and externally directed aggression do not predict clinical outcome. It was hypothesised that patients who present with good adjustment and compliance to the treatment regime do not necessarily have a better prognosis, at least in the short-term, than patients who act out and do not fully conform to the rules of milieu. The primary outcome measured was hospital adjustment in relation to: (1) patient functioning (nurse rated Hospital Adjustment Scale [HAS] 1 and 6 months after admission based on previous 4 weeks functioning); (2) social adjustment (rater-based SAS admission, 6 and 12 months); (3) symptomatic distress (self-report SCL 90 admission, 6 and 12 months); (4) general functioning (clinician-rated GAS admission 6 and 12 months). Follow-up was 12 months following admission.

Donnelly & Guy (1998) reported the evaluation of a cognitive-behavioural group intervention aimed at addressing offending behaviour for 12 mentally disordered offenders (42% dual diagnosis of personality disorder) in a high security hospital in Scotland. Outcomes measured were: (1)

impulsiveness (Impulsiveness Questionnaire pre- and post-intervention); (2) social comparison (Social Comparison Scale pre- and post-intervention); (3) anxiety (State-Trait Anxiety Inventory [six item short inventory] weekly); (4) alternative thinking (Alternative Thinking Test pre- and post-intervention); and (5) ward atmosphere (Ward Atmosphere Scale pre- and post-intervention). The primary aim was to monitor the implementation of an offending behaviour group programme on 2 wards and to evaluate its effectiveness in bringing about change, both in the group attendees and each ward as a whole. The secondary purpose was to evaluate the usefulness of different measures when used with MDO's as there are few standardised measures to this population. Follow-up was at post-treatment time 10 weeks

Hughes *et al.* (1997) reported on the first stage evaluation of a treatment programme for 15 personality disordered offenders in the psychological treatment unit, Rampton high security hospital. The aim was to give the first outcome findings from a treatment unit for PD offender-patients detained in a high security psychiatric hospital and to evaluate the effects of the therapeutic regime on change in the patient group. A battery of outcome measures were utilised as appropriate before and immediately upon completion of the individual groups. For the assertiveness group (Assertion Questionnaire; Body Language Questionnaire; Likelihood Questionnaire; Buss-Durkee Hostility Inventory); for the men talking group (Macho Attitudes Questionnaire; Emotion Control Questionnaire; Social Response Questionnaire); for the cognitive skills group (Social Problem-Solving Inventory; Consequences Questionnaire); for the self-esteem group (Positive Adjectives Checklist; Negative Adjectives Checklist; Positive Thoughts Questionnaire; Negative Thoughts Questionnaire; Beliefs Questionnaire; Culture-free Self-esteem Inventory); for the problem-solving group (Social Problem-Solving Inventory; Consequences Questionnaire; Criminal Sentiments Scale; Impulsivity/Empathy); for the emotional awareness group (Criminal Sentiments Scale; Impulsivity/Empathy). Follow-up was for a possible 18 months of treatment in total.

Nehls (1991) and Nehls (1992) reported on a study of group therapy for eight clients with borderline personality disorder within a community mental health centre. Nehls (1991) in her first paper reported on client-reported process and outcome measures. The outcomes measured were: (1) perception of group therapy process; (2) positive outcome association; (3) relationship between clients perception of helpful factors and successful outcomes. Both the process and outcome of group therapy for this population was measured by asking the following three questions: (1) how do people with borderline personality disorder perceive the process of group therapy? (2) is group therapy associated with positive outcomes, no change, or negative outcomes? (3) is there a relationship between clients' perceptions of helpful factors and successful outcomes?. A number of outcome measures were utilised: at treatment weeks five, ten, 15, 20, the self-report Yalom's curative factors (to measure process) - altruism, group cohesiveness, universality, interpersonal learning/input, interpersonal learning/output, guidance, catharsis, identification, family reenactment, instillation of hope, existential factors, Self-understanding (60 items, 5 statements for each factor); and at baseline and treatment weeks one, five, ten, 15, 20, the Brief Symptom Inventory (BSI) and Goal Attainment Scale (GAS) (to measure perception of outcome). Follow-up was the end of therapy week 20.

Nehls (1992) in the later paper explicated the interventions used in what was termed a "successful trial of group therapy". The assumption was that by categorising and counting therapists' verbal responses, information about the type and amount of interventions used over time was obtained.

This process provided the means to verify if the therapists' responses were consistent with a supportive, problem-solving approach. The specific research questions were: (1) did the therapists' levels of verbal activity change over time? (2) which of the counsellor verbal response categories were used most frequently? (3) did the use of specific verbal response categories change over time? (4) what was the degree of structure reflected in the therapists' interventions? The outcome measure employed was the rater categorised Hill Counsellor Verbal Response Category System-R (HCVRCS-R). Follow-up was the end of therapy week 20.

Stevenson & Meares (1992) reported on the effectiveness of well-defined out-patient psychotherapy for 48 patients with borderline personality disorder. Outcomes measured one year prior and one year post-therapy were: (1) drug use - illicit and prescribed; (2) visits to medical professionals; (3) episodes of violence and self-harm; (4) time away from work; (5) hospital admission and duration of in-patient time; (6) symptoms (self-report Cornhill Index pre-therapy, six months into therapy, after 12 months of therapy, 12 months after completion of therapy); and (7) number of DSM III criteria. The aim was to evaluate the effectiveness of an identifiable form of psychotherapy, conducted by trainee psychotherapists working under close supervision, in the management of out-patients with borderline personality disorder. Follow-up was 12 months following completion of therapy.

Tennant & Hughes (1998) describes experiences with a small pilot group of seven male personality disordered violent offenders who participated in an 18 session weekly group program in a high security hospital. Outcomes measured were: (1) pre- and post-intervention masculine attitude (self-report Masculine Attitude Questionnaire); (2) pre- and post-intervention emotional control (self-report Emotional Control Questionnaire); (3) pre- and post-intervention social problem solving (self-report Social Problem Solving Inventory); (4) weekly through behavioural observation by the group facilitator group disclosure, participation and motivation, and contribution to group discussion. The length of follow-up was at 18 weeks completion of therapy time.

Table 13: Population and sample characteristics of before-and-after studies

Study	Population and sampling method	Entry/exclusion criteria	Size of intervention group	Attrition
Budman <i>et al.</i> (1996)	Patients entering into the Harvard Community Mental Health Plan, a large New England health maintenance organisation with over 500,000 members. This is a private insurance scheme for the employed mainly.	<p>Entry:</p> <p>Age between 21-45</p> <p>Axis II diagnosis pathology, preference for Cluster B and C (but not APD)</p> <p>Willingness to participate</p> <p>Referred through setting (see above) clinician long-term group psychotherapy</p> <p>Exclusion:</p> <p>Axis I diagnosis of schizophrenia, bipolar disorder, paranoid disorder</p> <p>Axis II diagnosis of schizoid, schizotypal, paranoid or antisocial personality disorders</p> <p>Acute Axis I disorder (i.e. depression) which needs to be predominant form of treatment</p> <p>Acute suicidality or homicidality</p> <p>Acute substance abuse</p> <p>Psychiatric hospitalisation within the last year</p>	n= 49	25 (51%) of these almost half (11) had a definite or probable borderline personality disorder
Chiesa (2000)	87 patients consecutively admitted to the Cassel hospital for medium/long-term residential treatment between April 1994 and October 1997 were invited to participate	None stated	n=81	11 dropped out following consent but before treatment and were excluded from the predictor analysis of outcome 23 (28%) dropped out of treatment or were discharged by staff within 12 weeks of admission. 10 (12%) left treatment after 14 weeks

Table 13 (cont): Population and sample characteristics of before-and-after studies

Study	Population and sampling method	Entry/exclusion criteria	Size of intervention group	Attrition
Donnelly & Guy (1998)	Two wards in the State Hospital Carstairs (n=52)	Not stated	n=12	One patient dropped after initial assessment and was replaced by another patient in week two
Hughes <i>et al.</i> (1997)	15 patients admitted to the psychological treatment unit over a 18 month period. All classified as psychopathic disorder under the Mental Health Act 1983	Unit admission criteria excluded any patient less than 'dull normal' intelligence; frankly psychotic; taking heavy doses of neuroleptic medication; a score of more than 30 on the PCL-R; strong ambivalence about the ward A demonstrable motivation to treatment seen as essential	n=9	Four patients left the ward during the 18 months owing to refusal to participate in the treatment programme
Nehls (1991) And Nehls (1992)	Eight clients at a community mental health centre meeting DSM -III-R criteria for borderline personality disorder according to 3 independent evaluations	DSM -III-R criteria for borderline personality disorder	n=8 Nehls (1992) states in the paper that the therapists' interventions comprised the sample.	n=1 by week 10 of therapy

Table 13 (cont): Population and sample characteristics of before-and-after studies

Study	Population and sampling method	Entry/exclusion criteria	Size of intervention group	Attrition
Stevenson & Meares (1992)	85 consecutive patients referred by psychiatrists, allied health professionals, community clinics, in-patient units, self-referrers. If met inclusion criteria assigned to a therapist	<p>Inclusion:</p> <p>DSM III criteria for borderline personality disorder</p> <p>Persisting social dysfunction (unemployed for more than 12 months, absence of or severely dysfunctional interpersonal relationships, antisocial behaviours)</p> <p>Written consent</p> <p>Exclusion:</p> <p>Borderline intellectual retardation (n=2)</p> <p>Language difficulty (n=2)</p> <p>Anti-social and uncontrollable violent behaviour (n=1)</p> <p>Failure to keep 3 consecutive appointments (n=3)</p>	n=48	8 dropped out (mostly within first 3 months of treatment) 7 continued therapy after the 12 months - thus were excluded from analysis 3 could not be contacted at 24 months (12 months following end of treatment)
Tennant & Hughes (1998)	One ward in a high security hospital specialising in psychological treatment of male personality disordered offenders (n=12)	<p>Entry:</p> <p>If deemed by their multi-disciplinary clinical team to have significant problems with their concept of masculinity.</p> <p>Agreed to participate</p>	Intervention n=7	Week one n=1, week five n=1

Table 14: Description of intervention for before -and-after studies

Study	Nature of intervention	Who carried out the intervention
Budman <i>et al.</i> (1996)	<p>Interpersonal and time-limited group psychotherapy. Five groups each consisted of nine-ten members – men and women who met weekly for 90 minutes for a total of 72 sessions (approx. 18 months)</p> <p>Groups were closed with constant membership – except for two groups where two members were added at week 48 owing to attrition</p> <p>One group high attrition (80%)</p>	<p>Five therapists – minimum of three years group therapy experience – highly experienced clinicians</p> <p>Two psychologists, two psychiatric nurses, one social worker</p> <p>Underwent a four month training program (two hours weekly)</p> <p>Ongoing two hour weekly supervision of videotaped group therapy sessions throughout the study</p>
Chiesa (2000)	<p>Treatment programme consists of formal individual twice weekly psychoanalytically orientated psychotherapy and sociotherapy within the therapeutic community. A structured milieu has been created which makes use of the daily aspects of living for therapeutic purposes. Patients are encouraged to be active in their treatment. Activities are organised through regular small group meetings chaired by elected patients and monitored and facilitated by nursing staff.</p>	<p>Staff at Cassel hospital</p>
Donnelly & Guy (1998)	<p>The Offending Behaviour Programme is adapted from the Reasoning and Rehabilitation Programme.</p> <p>Run over 10 sessions</p> <p>Assessment (2 sessions)</p> <p>Prisons and special hospitals (1 session)</p> <p>Offending behaviour (2 sessions)</p> <p>Problem solving (2 sessions)</p> <p>Anger management (2 sessions)</p> <p>Moral dilemmas (1 session)</p> <p>Approach is essentially cognitive-behavioural and involves teaching cognitive skills and behavioural methods to help individuals deal less impulsively with difficult or potentially violent situations</p>	<p>A clinical nurse specialist and a chartered forensic clinical psychologist</p>

Table 14 (cont): Description of intervention for before-and-after studies

Study	Nature of intervention	Who carried out the intervention
Hughes <i>et al.</i> (1997)	<p>Comprised of three elements:</p> <ul style="list-style-type: none"> • A supportive ward milieu • Group work as part of an intensive treatment programme • Individual support and treatment as appropriate <p>The group work took the form of a cluster of semi-structured groups designed to meet targets of changing cognitive, emotional, and skill functioning (assertiveness group, men talking group, cognitive skills group, self-esteem group, problem-solving group, emotional awareness group).</p> <p>Individual treatment was added to the group structure dependent on individual needs – mostly specific offence-related issues, childhood abuse, and support to clarify and reinforce group material covered</p>	Multidisciplinary clinical team including nurses, psychologists and social workers
Nehls (1991) And Nehls (1992)	Once a week group therapy over 20 seventy-five minute sessions focussed on group members self-defined goals. Used a variety of therapeutic techniques, including empathy, reassurance, clarification, direct feedback, problem-solving	Medical Director of the community mental health centre and the author a nurse (PhD)
Stevenson & Meares (1992)	Twice weekly out-patient psychotherapy for 12 months	20 trainee therapists - trainee psychiatrists, registered nurses, psychologists - 6 post-graduate qualifications
Tennant & Hughes (1998)	<p>Group treatment programme to look at the concept of masculinity</p> <p>In the early stages a directive, action-oriented strategy was used with emphasis on developing relationships, caring, empathy, expression of feelings and talking about problems</p> <ul style="list-style-type: none"> • Series of 18 weekly two-hour sessions • Group worked through seven issues • Clarify group aims and expectations of participants • How others expect men to behave • The socialisation process and development of ideas about manhood • Transition from boy to man • Inconsistencies between public image and private self • Dealing with negative emotions • How personal concept of masculinity affects others 	Lecturer-practitioner and a nursing assistant

Table 15: Results from before-and-after studies

Study	Results					
Budman <i>et al.</i> (1996)	Reported on selected outcome measures (IIP, SCL-90-R, GAS, SE, SAS-SR) Of the 21 patients left in the 4 groups improvement was reported over the 18 month period of treatment on IIP, SCL-90, GAS, Self-esteem, SAS-SR					
	Scale	Variables	Overall F value	df	Test of linear Trend	df
	IIP	Mean	1.39	6,14	4.95*	1,19
	SCL-90	Global severity index	2.27	6,14	15.83***	1,19
	DSQ	Severe factor	0.42	3,17	0.15	
	DSQ	Adaptive factor	4.35*	3,17	0.20	1,19
	DSQ	Withdrawal factor	2.89	3,17	1.40	1,19
	SE	Global score	2.90	3,17	9.07**	1,19
	GAS	Global score	22.13***	2,18	40.99***	1,19
	50-BSRS	Extraversion factor	0.48	3,17	1.02	1,19
	50-BSRS	Agreeableness factor	0.74	3,17	1.59	1,19
	50-BSRS	Conscientiousness factor	1.06	3,17	0.12	1,19
	50-BSRS	Emotional stability factor	3.33*	3,17	9.39**	1,19
	50-BSRS	Openness factor	0.36	3,17	0.86	1,19
	PiYL	Satisfaction with friends	0.21	3,17	0.01	1,19
	PiYL	Satisfaction with intimates	1.02	3,17	0.15	1,19
	PiYL	Number of friends	0.73	3,17	0.45	1,19
	PiYL	Number of intimates	1.69	3,17	0.06	1,19
	SAS-SR	Overall adjustment score	6.21**	3,17	20.13***	1,19
	PET	Benefit factor	7.12***	5,15	32.04***	1,19
	PET	Liking factor	5.80**	5,15	14.29***	1,19
	Target Problems	Mean	13.14***	6,14	45.41***	1,19
	Pre- and post-treatment Axis II diagnosis for the 21 remaining in the study significantly reduced (mean 14.2 [sd=6.6] to 10.7 [sd=7.2]) matched pairs $t = -2.77$ $df=20$ $p < 0.012$ (many patients either lost at least one personality disorder diagnosis or moved to probable diagnosis (at reduced level of severity))					

Table 15 (cont): Results from before -and-after studies

Study	Results
Chiesa (2000)	<p><i>Hospital Adjustment Scale (HAS) one month after admission (n=81)</i></p> <p>Physical harm to self and others mean=0.33 sd=0.47 Threat of physical harm mean=0.19 sd=0.53 Verbal harm mean=0.90 sd=0.97 Threat of property damage and damage to property mean=0.11 sd=0.47 Violation of rules mean=0.36 sd=0.36 Self-care mean=1.47 sd=0.52 Use of unstructured time mean=1.75 sd=0.52 Attendance at group activities mean=1.88 sd=0.57 Quality of participation to group activities mean=0.24 sd=0.26 Trust in staff mean=2.10 sd=0.44 Internal aggression mean=0.22 sd=0.24 External aggression mean=0.98 sd=1.12 Total aggression mean=0.83 sd=0.38</p> <p>Low average baseline scores for ‘hard’ dimensions of maladjustment (physical harm to self or other, threat of physical harm to self or other, damage to property, violation of rules and verbal harm) compared with ‘soft’ dimensions (self-care, trust in staff, use of free time, degree and quality of participation to structured group activities), which give the largest contribution to total adjustment</p> <p>No significant associations between hospital adjustment and the independent variables (sex, age, educational and occupational status, number and length of previous hospitalisations, psychotropic medication on admission, reported history of sexual and physical abuse, Axis I and II diagnosis, personality disorder comorbidity)</p> <p>Younger age of onset of mental disturbance ($r=-.22$) and first psychiatric hospitalisation ($r=-.25$) worse TAS score</p> <p>In year prior to admission - history substance misuse ($t=3.1$, $p<0.01$) and self-harm ($t=-2.7$, $p<0.05$) worse TAS score (substance abuse present TAS mean=1.08 sd=0.28, absent mean=0.87 sd=0.29) and (self-harm present TAS mean=1.03 sd=0.29, absent mean=0.85 sd=0.28)</p> <p>Better TAS scores if in the year prior to admission – closer friendships ($r=-.28$), greater frequency of social contacts ($r=-.23$)</p> <p>Better TAS scores if lower GSI ($r=.36$) and GAS ($r=-.47$) scores</p> <p>All independent variables significantly associated with TAS entered into step-wise linear regression – clinical global ratings of overall adjustment (GAS) ($B(79)=-.470$, $SE=.004$, $p<0.001$) and history of substance misuse in year prior to admission ($B(79)=.239$, $SE=.064$, $p<0.02$) were the strongest predictors of hospital adjustment</p> <p><i>Therapeutic community and external community adjustment:</i></p> <p>pre-admission SAS and 1st month level of functioning ($r=0.16$, ns) six months after admission and reliable change on the SAS ($F(59)=0.772$, ns) 12 months after admission and reliable change on the SAS ($F(59)=0.872$, ns)</p>

Table 15 (cont): Results from before -and-after studies

Study	Results
<p>Chiesa (2000)</p> <p>Continued</p>	<p><i>Hospital adjustment, early dropout and outcome</i></p> <p>35 (51%) were reliably improved at 12 months</p> <p>early dropouts n=25 (termination of treatment within 12 weeks of admission) showed a higher total adjustment score than continuers n=56</p> <p>early dropout mean=1.10 sd=0.25, and continuers mean=0.85 sd=0.25</p> <p>F(1)=13.45, p.001</p> <p>Early dropouts n=25 showed a higher total aggression score than continuers</p> <p>Early dropout mean=1.66 sd=1.49, and continuers mean=0.99 sd=1.04</p> <p>F(1)=5.38, p.03</p> <p>Early dropouts lower rate of reliable improvement</p> <p>Early dropout n=5 (29.4%) and continuers n=29 (55.8%)</p> <p>$\chi^2=3.56$, df=1, p<0.06</p> <p>following logistic regression with improvement as dependent variable – level of TAS a month after admission did not predict outcome at 12 months controlling for early dropout</p> <p>B=0.369, SE=0.900, df=1, ns</p> <p><i>Acting out and aggressive behaviour</i></p> <p>One-way ANOVA using mean total aggression scores between improvers and non-improvers was not significant</p> <p>Out of the 6 outliers with the highest total aggression scores, 6 (100%) were early drop-outs and 4 (67%) were not reliably improved at 12 months</p>
<p>Donnelly & Guy (1998)</p>	<p>Impulsiveness Questionnaire – impulsiveness mean=12.09 ± 4.41 and venturesomeness mean=11.00 ± 3.06 - both were more than one SD above normal control means; empathy scores were within the normal range</p> <p>Social Comparison Scale scores – on rank mean=27.27 ±9.89 and group mean=5.40 ±2.80 - within average range pre- and post-groupwork</p> <p>State-Trait Anxiety Inventory – for 10 weeks mean=10.91, throughout mean=10.27; adjusted to an equivalent full score mean=36.6 (norms for prisoners mean=45.96 ±11.04 and for schizophrenics mean=45.70 ±13.44)</p> <p>Alternative Thinking Test – number of ideas suggested both pre- and post-intervention were low and there were no noticeable qualitative differences</p> <p>Ward Atmosphere Scale – appeared little global change in pre- and post-intervention ward profiles for both patients and staff.</p> <p>Overall the 'relationship dimensions' subscale suggested that patients believed they were not involved enough in their own care programmes and were not adequately supported by either staff or other patients</p> <p>The 'treatment programme dimensions' subscale indicated that patients were not actively encouraged to be more independent and to take responsibility for their own behaviour and decisions, there was a great deal of emphasis on the expression of anger and aggression</p> <p>The 'system maintenance dimensions' subscale suggested that staff perceived themselves as running the wards in an ordinary and organised manner without being over controlling. However patients did perceive staff as over controlling</p>

Table 15 (cont): Results from before -and-after studies

Study	Results				
Hughes <i>et al.</i> (1997)	<p>Patients entered into analysis on the basis that they had completed a minimum of two treatment groups <i>A-priori</i> predictions made for the direction of positive clinical change made for each of the possible 31 measures (direction of predicted changes +1; no change 0; opposite direction to predicted change -1). A mean direction of change score then calculated for each patient</p>				
	Patient	Number of groups Attended	Average change changes	Number of positive changes	Number of negative
	1	2	0.00	10	10
	2	3	0.05	9	8
	3	6	0.44	17	6
	4	6	0.04	12	11
	5	6	0.78	20	2
	6	5	0.17	11	7
	7	4	0.52	17	5
	8	3	0.27	8	4
	9	4	-0.33	4	9
	<p>Mean range of clinical change +0.77 to -0.10, 2 patients having an overall mean score and one net score of 0 ($z=-2.10$, $p<0.05$)</p>				
	Patient	PCL-R total	PCL-R factor 1	PCL-R factor 2	
	1	27	9	16	
	2	20	10	7	
	3	22	8	10	
	4	28	10	15	
	5	11	6	5	
	6	17	10	4	
	7	19	9	9	
	8	18	7	10	
	9	21	10	10	
	<p>Relationship between PCL-R score and treatment gain ($r= -0.62$, $p<0.05$) – Factor 1 ($r= -0.75$, $p<0.05$) factor 2 ($r= -0.43$, NS). Thus high score on PCL-R correlates significantly with low clinical change</p>				
	<p>Correlations of clinical change with age, IQ, time in institutions, or time at risk all failed to reach statistical significance</p>				

Table 15 (cont): Results from before -and-after studies

Study	Results																																																																	
Nehls (1991)	<p data-bbox="407 306 638 338">Process of the group</p> <p data-bbox="407 338 1624 370">Mean helpfulness ratings of 12 curative factors at week 5 were all viewed as relatively less important than at weeks 10, 15, 20</p> <table border="1" data-bbox="407 402 1433 821"> <thead> <tr> <th data-bbox="407 402 739 434">Curative factor</th> <th data-bbox="748 402 918 434">Week 5*</th> <th data-bbox="927 402 1097 434">Week 10**</th> <th data-bbox="1106 402 1276 434">Week 15**</th> <th data-bbox="1285 402 1433 434">Week 20**</th> </tr> </thead> <tbody> <tr> <td data-bbox="407 434 515 466">Existential</td> <td data-bbox="748 434 873 466">20.50(8.44)</td> <td data-bbox="927 434 1052 466">26.00(7.40)</td> <td data-bbox="1106 434 1232 466">26.86(4.30)</td> <td data-bbox="1285 434 1411 466">26.29(4.65)</td> </tr> <tr> <td data-bbox="407 466 504 497">Altruism</td> <td data-bbox="748 466 873 497">20.25(8.70)</td> <td data-bbox="927 466 1052 497">23.43(5.38)</td> <td data-bbox="1106 466 1232 497">26.29(5.47)</td> <td data-bbox="1285 466 1411 497">24.71(5.28)</td> </tr> <tr> <td data-bbox="407 497 537 529">Universality</td> <td data-bbox="748 497 873 529">19.86(6.73)</td> <td data-bbox="927 497 1052 529">25.43(5.41)</td> <td data-bbox="1106 497 1232 529">27.71(5.41)</td> <td data-bbox="1285 497 1411 529">28.29(4.11)</td> </tr> <tr> <td data-bbox="407 529 515 561">Cartharsis</td> <td data-bbox="748 529 873 561">19.75(8.26)</td> <td data-bbox="927 529 1052 561">25.43(7.72)</td> <td data-bbox="1106 529 1232 561">25.86(7.58)</td> <td data-bbox="1285 529 1411 561">24.43(6.32)</td> </tr> <tr> <td data-bbox="407 561 470 593">Hope</td> <td data-bbox="748 561 873 593">19.25(6.92)</td> <td data-bbox="927 561 1052 593">24.43(5.09)</td> <td data-bbox="1106 561 1232 593">28.71(6.34)</td> <td data-bbox="1285 561 1411 593">26.29(6.65)</td> </tr> <tr> <td data-bbox="407 593 504 625">Cohesion</td> <td data-bbox="748 593 873 625">18.75(7.29)</td> <td data-bbox="927 593 1052 625">23.57(5.26)</td> <td data-bbox="1106 593 1232 625">25.57(6.19)</td> <td data-bbox="1285 593 1411 625">25.86(7.47)</td> </tr> <tr> <td data-bbox="407 625 683 657">Interpersonal learning/input</td> <td data-bbox="748 625 873 657">18.75(7.24)</td> <td></td> <td data-bbox="1106 625 1232 657">23.14(8.03)</td> <td></td> </tr> <tr> <td data-bbox="407 657 694 689">Interpersonal learning/output</td> <td data-bbox="748 657 873 689">17.75(6.34)</td> <td></td> <td data-bbox="1106 657 1232 689">24.57(3.65)</td> <td></td> </tr> <tr> <td data-bbox="407 689 593 721">Self-understanding</td> <td data-bbox="748 689 873 721">17.00(7.45)</td> <td data-bbox="927 689 1052 721">21.14(7.88)</td> <td data-bbox="1106 689 1232 721">22.86(6.77)</td> <td data-bbox="1285 689 1411 721">26.14(5.08)</td> </tr> <tr> <td data-bbox="407 721 504 753">Guidance</td> <td data-bbox="748 721 873 753">16.88(6.71)</td> <td data-bbox="927 721 1052 753">23.14(8.47)</td> <td data-bbox="1106 721 1232 753">23.86(6.20)</td> <td data-bbox="1285 721 1411 753">22.29(8.44)</td> </tr> <tr> <td data-bbox="407 753 548 785">Identification</td> <td data-bbox="748 753 873 785">15.88(5.62)</td> <td data-bbox="927 753 1052 785">17.00(4.69)</td> <td data-bbox="1106 753 1232 785">18.14(5.58)</td> <td data-bbox="1285 753 1411 785">18.43(6.45)</td> </tr> <tr> <td data-bbox="407 785 604 817">Family reenactment</td> <td data-bbox="748 785 873 817">15.00(5.60)</td> <td data-bbox="927 785 1052 817">20.86(7.99)</td> <td data-bbox="1106 785 1232 817">21.71(5.68)</td> <td data-bbox="1285 785 1411 817">22.57(8.77)</td> </tr> </tbody> </table> <p data-bbox="407 821 571 853">* n=8 **n=7</p> <p data-bbox="407 885 1321 917">Universality and existential factors consistently ranked top 3 in terms of perceived helpfulness</p> <p data-bbox="407 917 1836 949">Wilcoxon (2 tailed p<0.05) five to 20 week differences – Universality z=2.37; Hope z=2.37; Existential z=2.20; Cohesion z=2.20; Guidance z=2.20;</p> <p data-bbox="407 949 940 981">Family reenactment z=2.20; Self-understanding z=2.19</p> <p data-bbox="407 1013 649 1045">Therapeutic outcome</p> <p data-bbox="407 1045 963 1077">BSI and GAS no significant changes baseline to week one</p> <p data-bbox="407 1077 1153 1109">Weeks one to 20 BSI depression (z=2.20 p<0.05), hostility (z=2.11 p<0.05)</p> <p data-bbox="407 1109 795 1141">Weeks one to 20 GAS (z=2.20 p<0.05)</p> <p data-bbox="407 1141 1500 1173">Means and SD of standard scores of GAS showed a steady upward trend in clients perception of goal attainment</p> <p data-bbox="407 1204 784 1236">Process and outcome relationship</p> <p data-bbox="407 1236 1590 1268">Week 20 goal attainment and family reenactment (r=0.84, p<0.01) and hostility and family reenactment (r= -0.88, p<0.01)</p> <p data-bbox="407 1268 1724 1300">This rating of helpfulness of family reenactment were positively associated with goal attainment and negatively associated with hostility</p>	Curative factor	Week 5*	Week 10**	Week 15**	Week 20**	Existential	20.50(8.44)	26.00(7.40)	26.86(4.30)	26.29(4.65)	Altruism	20.25(8.70)	23.43(5.38)	26.29(5.47)	24.71(5.28)	Universality	19.86(6.73)	25.43(5.41)	27.71(5.41)	28.29(4.11)	Cartharsis	19.75(8.26)	25.43(7.72)	25.86(7.58)	24.43(6.32)	Hope	19.25(6.92)	24.43(5.09)	28.71(6.34)	26.29(6.65)	Cohesion	18.75(7.29)	23.57(5.26)	25.57(6.19)	25.86(7.47)	Interpersonal learning/input	18.75(7.24)		23.14(8.03)		Interpersonal learning/output	17.75(6.34)		24.57(3.65)		Self-understanding	17.00(7.45)	21.14(7.88)	22.86(6.77)	26.14(5.08)	Guidance	16.88(6.71)	23.14(8.47)	23.86(6.20)	22.29(8.44)	Identification	15.88(5.62)	17.00(4.69)	18.14(5.58)	18.43(6.45)	Family reenactment	15.00(5.60)	20.86(7.99)	21.71(5.68)	22.57(8.77)
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Table 15 (cont): Results from before-and-after studies

Study	Results
Nehls (1992)	<p><i>Therapists' level of verbal activity</i> Number of verbal response units ranged from 157 to 306 The average number per session 226, the average per minute 3.18 (H=7.00, df=7, Q=.4289 not significant)</p> <p><i>Frequency of verbal response categories</i> Overall most frequently used verbal response category was providing information (55%) Next information seeking (22%) Third reflection and restatement (10%)</p> <p><i>Response categories used over time</i> Collapsing data into early (sessions 1, 3), middle (sessions 3, 6, 8, 12) and late (sessions 18, 20) Two most frequent response categories providing information and information seeking No statistical differences in the utilisation of the 8 categories over time</p> <p><i>Degree of structure</i> Low (encouragement/approval/reassurance, reflection/restatement, self-disclosure) Moderate (conformation, interpretation, providing information) High (direct guidance/advice, information seeking) Unclassifiable Score ranges from 1-3, a higher score means higher structure and represents the degree to which a counsellors messages potentially structure subsequent client responses) High structure responses more likely to focus or circumscribe the conversational topic Degree of structure ranged from 1.93 to 2.12 The majority of sessions composed of moderate structure responses No significant change over time (H=7.00, df=7, Q=0.4289)</p>
Stevenson & Meares (1992)	<p>Significant reduction in the number of DSM III criteria at follow-up (mean=10.50) – pre-treatment mean=17.40 most frequently observed changes – reduction in impulsivity, affective instability, anger, suicidal behaviours only 70% (n=21) at follow-up fulfilled DSM III criteria for borderline personality disorder compared with 100% before treatment statistically significant (marked) improvement in all 7 objective behavioural measures (12 months before - 12 months after treatment)</p>

Table 15 (cont): Results from before-and-after studies

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	<table border="1"> <thead> <tr> <th></th> <th colspan="2">One year before</th> <th colspan="2">One year after</th> <th colspan="2">Paired t-test</th> </tr> <tr> <th>Measure</th> <th>mean</th> <th>sd</th> <th>Mean</th> <th>sd</th> <th>T (df=29)</th> <th>P</th> </tr> </thead> <tbody> <tr> <td>Violent episodes (per year)</td> <td>2.70</td> <td>4.05</td> <td>0.80</td> <td>1.80</td> <td>3.69</td> <td><0.001</td> </tr> <tr> <td>Drugs used (number per day)</td> <td>3.80</td> <td>3.42</td> <td>0.63</td> <td>0.80</td> <td>5.05</td> <td><0.001</td> </tr> <tr> <td>Medical visits (number per month)</td> <td>3.50</td> <td>2.75</td> <td>0.47</td> <td>0.57</td> <td>6.16</td> <td><0.001</td> </tr> <tr> <td>Self-harm (episodes per year)</td> <td>3.77</td> <td>4.66</td> <td>0.83</td> <td>1.18</td> <td>3.82</td> <td><0.001</td> </tr> <tr> <td>Time away from work (months per year)</td> <td>4.47</td> <td>4.10</td> <td>1.37</td> <td>2.57</td> <td>4.90</td> <td><0.001</td> </tr> <tr> <td>Hospital admissions (number per year)</td> <td>1.77</td> <td>1.52</td> <td>0.73</td> <td>1.02</td> <td>3.03</td> <td><0.01</td> </tr> <tr> <td>Time as an inpatient (months per year)</td> <td>2.87</td> <td>2.33</td> <td>1.47</td> <td>1.87</td> <td>2.73</td> <td><0.05</td> </tr> <tr> <td>Cornhill Index (at end of year)</td> <td>42.63</td> <td>14.90</td> <td>28.63</td> <td>13.35</td> <td>5.68</td> <td><0.001</td> </tr> <tr> <td>DSM III (at end of year)</td> <td>17.40</td> <td>2.87</td> <td>10.50</td> <td>5.08</td> <td>7.48</td> <td><0.001</td> </tr> </tbody> </table> <p>Cornhill Index scores dropped significantly 12 months after treatment compared to pre-treatment The rate of change was approximately linear mean 0 months = 42.63, 6 months =41.00, 12 months =33.60, 24 months =28.63</p>		One year before		One year after		Paired t-test		Measure	mean	sd	Mean	sd	T (df=29)	P	Violent episodes (per year)	2.70	4.05	0.80	1.80	3.69	<0.001	Drugs used (number per day)	3.80	3.42	0.63	0.80	5.05	<0.001	Medical visits (number per month)	3.50	2.75	0.47	0.57	6.16	<0.001	Self-harm (episodes per year)	3.77	4.66	0.83	1.18	3.82	<0.001	Time away from work (months per year)	4.47	4.10	1.37	2.57	4.90	<0.001	Hospital admissions (number per year)	1.77	1.52	0.73	1.02	3.03	<0.01	Time as an inpatient (months per year)	2.87	2.33	1.47	1.87	2.73	<0.05	Cornhill Index (at end of year)	42.63	14.90	28.63	13.35	5.68	<0.001	DSM III (at end of year)	17.40	2.87	10.50	5.08	7.48	<0.001
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Tennant & Hughes (1998)	<p>Group participation (average of intervention group) Personal disclosure increased at mid-point (score 4 on Likert scale = good) and then decreased to pre-intervention level (3=average) Motivation increased marginally (sharp fall at week 3 and 8) Participation increased gradually (3 – 4)</p> <p>Contribution to group discussion Not data for last two weeks of intervention – no clear conclusion from the average across participants could be made</p> <p>Masculine Attitude Questionnaire On measure of hypermasculinity pre-intervention mean=6 – post-intervention mean=3.4</p> <p>Emotional Control Questionnaire Measure of emotional inhibition pre-intervention mean=6.5 – post-intervention mean=5.4</p> <p>Social Problem Solving Inventory All participants showed a reduction in the likelihood of aggressive responses No clear pattern to the changes of likelihood of assertive or passive responses</p> <p>On these later three attitudinal measures of the 23 available individual pre- and post-intervention comparisons on the five attitudinal measures, 16 changed in the desired direction</p>																																																																													

7.1.4.2 Scope of before-and-after studies

In one study the intervention was performed solely by a nurse (Tennant & Hughes, 1998) and in the remaining six studies the intervention was by mixed disciplines, with nurses delivering the intervention to varying degrees. Three studies were undertaken in forensic mental health care: two of the mixed disciplines studies (Donnelly & Guy, 1998; Hughes *et al.*, 1997) and the one nursing only study (Tennant & Hughes 1998), all within high security male wards.

A range of interventions were used within the before-and-after studies. In three of the mixed disciplines studies the intervention was psychotherapy: group (Budman *et al.*, 1996) and individual (Chiesa, 2000; Stevenson & Meares, 1992). Two mixed disciplines studies used group therapy (Donnelly & Guy, 1998; Nehls, 1991; 1992) and one group and individual work as well as a supportive ward milieu (Hughes *et al.*, 1997). In the nursing only study (Tennant & Hughes, 1998) the intervention was group therapy.

Five studies confirmed DSM diagnosis (Budman *et al.*, 1996; Chiesa, 2000; Hughes *et al.*, 1997; Nehls, 1991 and 1992; Stevenson & Meares, 1992). Two studies included only patients with borderline personality disorder (Nehls, 1991 and 1992; Stevenson & Meares, 1992). It appeared that the researchers/program staff recruited patients in all seven studies. A high percentage of patients were female in three studies (Chiesa, 2000; Nehls, 1991 and 1992; Stevenson & Meares, 1992). Samples sizes ranged from seven to 81.

The six studies measured outcomes from four of the standard outcome categories, as well as the "other" category:

- **change in service usage** (visits to medical professionals⁷, hospital admission and duration of in-patient time⁷);
- **change in personality disorder status** (the big 5 personality factors of extraversion, agreeableness, emotional stability, conscientiousness, openness¹, personality disorder¹, number of DSM III criteria⁷);
- **change in symptoms** (symptomatic distress^{1,2}, psychiatric disturbance¹, anxiety³, symptoms⁷);
- **change in social functioning and/or disability** (self-esteem¹, defensive style¹, importance and severity of problems¹, patient functioning², general functioning², impulsiveness³, alternative thinking³, episodes of violence and self-harm⁷, emotional control⁸, interpersonal functioning¹, social functioning¹, perceived social support¹, social adjustment², social comparison³, social problem solving⁸, time away from work⁷);

¹ Budman *et al.* (1996)

² Chiesa (2000)

³ Donnelly & Guy (1998)

⁴ Hughes *et al.* (1997)

⁵ Nehls (1991)

⁶ Nehls (1992)

⁷ Stevenson & Meares (1992)

⁸ Tennant & Hughes (1998)

- *other* (reaction to the group experience and patients assessed benefit¹, ward atmosphere³, drug use-illicit and prescribed⁷, perception of group therapy process⁵, positive outcome association⁵, relationship between clients perception of helpful factors and successful outcomes⁵, counsellor verbal response⁶, masculine attitude⁸, group disclosure, participation and motivation, and contribution to group discussion⁸).
- The remaining study (Hughes *et al.*, 1997) used a battery of outcomes appropriate to the individual group completed.

There was a wide range in the length of follow-up: from ten weeks post-treatment to 18 months (completion of treatment).

7.1.4.3 *Quality of before-and-after studies*

Methodological quality of before-and-after studies was assessed using criteria suggested by the NHS Centre for Reviews and Dissemination (1996) and Clarke and Oxman (2000). A summary of the quality for the studies can be found in Table 16.

In five of the seven studies eligibility criteria were stated (Budman *et al.*, 1996; Hughes *et al.*, 1997; Nehls, 1991 and 1992; Stevenson & Meares, 1992; Tennant & Hughes, 1998). Blinding of assessors was partially met in all seven two studies as they used at least one patient self-report as an outcome measure. Completeness of follow-up was only met in one study (Donnelly & Guy, 1998). No study reported that they used intention to treat analysis, or provided a power calculation. Overall, the methodological quality of the before-and-after studies has to be considered low in terms of quality of blinding of assessors and length of follow-up.

¹ Budman *et al.* (1996)

² Chiesa (2000)

³ Donnelly & Guy (1998)

⁴ Hughes *et al.* (1997)

⁵ Nehls (1991)

⁶ Nehls (1992)

⁷ Stevenson & Meares (1992)

⁸ Tennant & Hughes (1998)

Table 16: Summary of methodological quality of before-and-after studies

Quality measure	Budman <i>et al.</i> (1996)	Chiesa (2000)	Donnelly & Guy (1998)	Hughes <i>et al.</i> (1997)	Nehls (1991), (1992)	Stevenson & Meares (1992)	Tennant & Hughes (1998)
Eligibility criteria	Met	Not met	Not met	Met	Met	Met	Met
Blinding of assessors	Partially met (patient self-report)	Partially met (patient self-report)	Partially met (patient self-report)	Partially met (patient self-report)	Partially met (patient self-report)	Partially met (patient self-report)	Partially met (patient self-report)
Was follow-up longer enough for outcomes to occur	Met	Met	Met	Met	Met	Met	Met
Attrition	High	High	Very low	High	Very low	Low	Low
Completeness of follow-up	Not met	Not met	Met	Not met	Not met	Not met	Not met
Intention to treat analysis	No	No	No	No	No	No	No
Power calculation	No	No	No	No	No	No	No

7.1.4.4 Effect sizes from before-and-after studies

Where possible effect sizes were calculated according to the formula provided in Section 4.5, and in this case the control group was the before score. Effect sizes could be calculated for two of the seven studies (Nehls, 1991; Stevenson & Meares, 1992). Table 17 summarises the effect sizes from these studies.

Outcome	Effect size	% non-overlap
Change in service usage		
Medical visits (number per month) ¹	1.10	over 58.9
Hospital admissions (number per year) ¹	0.68	over 38.2
Time as an inpatient (months per year) ¹	0.60	38.2
Change in personality disorder status		
DSM III (at end of year) ¹	2.40	over 81.1
Change in symptoms		
Cornhill Index (at end of year) ¹	0.94	over 51.6
Change in social functioning and/or disability		
Violent episodes (per year) ¹	0.47	over 27.4
Self-harm (episodes per year) ¹	0.63	over 38.2
Time away from work (months per year) ¹	0.76	over 43.0
Other		
Process of the group		
Altruism (week 5-20) ²	0.51	over 33.0
Cohesion (week 5-20) ²	0.98	over 51.6
Universality (week 5-20) ²	1.25	over 62.2
Interpersonal learning/input (week 5-15) ²	0.61	over 38.2
Interpersonal learning/output (week 5-15) ²	1.08	over 55.4
Guidance (week 5-20) ²	0.81	over 47.4
Cartharsis (week 5-20) ²	0.57	over 33.0
Identification (week 5-20) ²	0.45	over 27.4
Family reenactment (week 5-20) ²	1.35	over 65.3
Hope (week 5-20) ²	1.02	over 55.4
Existential factors (week 5-20) ²	0.69	over 38.2
Self-understanding (week 5-20) ²	1.23	over 62.2
Drugs used (number per day) ¹	0.93	over 51.6

¹Stevenson & Meares, 1992 ²Nehls, 1991

Table 17: Summary of effect sizes from before-and-after studies

7.1.4.5 Synthesis of before-and-after studies

It remains difficult to draw any firm conclusions from these seven before-and-after studies. However, they can all be considered representative of the population from which they were drawn. The one nursing only study (Tennant & Hughes, 1998) offers weak evidence to the review through its level of reporting. From the six mixed disciplines studies, four (Budman *et al.*, 1996; Chiesa,

2000; Hughes *et al.*, 1997; Stevenson & Meares, 1992) showed significant improvement. One (Stevenson & Meares, 1992) only included patients with borderline personality disorder.

A positive effect was reported for the outcome categories of change in service usage in one of the mixed disciplines trials (Stevenson & Meares, 1992); for change in personality disorder status for two of the mixed disciplines studies (Budman *et al.*, 1996; Stevenson & Meares, 1992); change in symptoms in three of the mixed disciplines studies (Budman *et al.*, 1996; Chiesa, 2000; Stevenson & Meares, 1992); and for change in social functioning and/or disability in three of the mixed disciplines studies (Budman *et al.*, 1996; Chiesa, 2000; Stevenson & Meares, 1992). The one nursing only study (Tennant & Hughes, 1998) reported insufficient data to assess effect.

No effect was reported for the outcome categories of change in symptoms in one of the mixed disciplines study (Donnelly & Guy, 1998) and for change in social functioning and/or disability in two of the mixed disciplines studies (Budman *et al.*, 1996; Donnelly & Guy, 1998).

In relation to the outcome categories more specifically:

- ***change in service usage*** - Stevenson & Meares (1992) reported a significant reduction in visits to medical professionals (large effect); hospital admission (medium effect) and duration of in-patient time (medium effect).
- ***change in personality disorder status*** - Budman *et al* (1996) reported a significant reduction in one of the big 5 personality factors (emotional stability) and personality disorder. Stevenson & Meares (1992) reported a significant reduction in the number of DSM III criteria for personality disorder (large effect).
- ***change in symptoms*** - Budman *et al.* (1996) reported a significant reduction in patient symptomatic distress and psychiatric disturbance. Chiesa (2000) reported a significant reduction in symptomatic distress. Stevenson & Meares (1992) reported a significant reduction in symptoms (large effect). Donnelly & Guy (1998) reported no significant difference in anxiety.
- ***change in social functioning and/or disability*** - Budman *et al.* (1996) reported a significant increase in self-esteem, interpersonal functioning, social functioning, and identifying the importance and severity of problems. Chiesa (2000) reported a significant increase in patient functioning, general functioning and social adjustment. Stevenson & Meares (1992) reported a significant decrease in episodes of violence (small effect) and self-harm (medium effect), and time away from work (medium effect). Budman *et al.* (1996) reported no significant difference in perceived social support, and defensive style. Donnelly & Guy (1998) reported no significant difference in social comparison, impulsiveness and alternative thinking.
- In the remaining study (Hughes *et al.*, 1997) significant clinical gain was found.

In relation to the actual intervention tested through the four mixed disciplines trials: Budman *et al.* (1996) used group psychotherapy; Chiesa (2000) used individual psychotherapy and therapeutic milieu; Hughes *et al.* (1997) group therapy, individual support and therapeutic milieu; and Stevenson & Meares (1992) individual psychotherapy. Overall the above outcomes indicate that there is no

evidence of positive effect in relation to any one outcome, from more than one before-and-after study for a particular intervention.

In one study it was apparent that training was given to carry out the intervention (Budman *et al.*, 1996) and in one other training was given during the course of the intervention (Stevenson & Meares, 1992). In three studies the intervention was provided by experienced facilitators (Donnelly & Guy, 1998; Nehls, 1991 and 1992; Tennant & Hughes, 1998). In three studies treatment fidelity was measured through supervision (Budman *et al.*, 1996; Stevenson & Meares, 1992; Tennant & Hughes, 1998); and in one (Nehls, 1991 and 1992) treatment fidelity was integral to the research evaluation.

Therefore, as with both the randomised controlled trials and non-randomised controlled trials, for each outcome category there is only evidence from one mixed disciplines before-and-after study to show positive effect for each type of intervention. No nursing only study has sufficient evidence to show positive effect. Positive effects occurred for change in service usage in one of the mixed disciplines trials; for change in personality disorder status for two of the mixed disciplines studies; change in symptoms in three of the mixed disciplines studies; and for change in social functioning and/or disability in three of the mixed disciplines studies.

7.1.5 Case studies

7.1.5.1 Description of case studies

Three case studies were included in the review. Table 18 summarises the nature of the intervention and who carried out the intervention for the three studies. Table 19 summarises the results.

Rogers & Vidgen (1997) discussed through a single case study the problem of social phobia within forensic institutions and provided an account of the treatment of one client with borderline personality disorder in a medium secure unit who had developed an extreme and disabling social phobia. The client was a 53 year old female inpatient who had spent over 15 years in all three high security hospitals and two medium secure units. Her index offence was arson, with a number of previous offences resulting in imprisonment or detention as an inpatient. She had past problems of violence to others, self injury and depression. Although was relatively stable she still required intensive nursing care. A number of outcomes were measured: (1) patient self-rated problems and targets at pre-, mid- and post treatment, 1, 3 and 6 month follow-up; (2) fear; (3) work and social adjustment; (4) depression.

Shearin & Linehan (1992) reported through 4 therapist-patient dyads on patient and therapist ratings, and relationship to progress, in dialectical behaviour therapy in borderline personality disorder. All four patients were women between the ages of 18-45 who met DSM III-R criteria for borderline personality disorder, Diagnostic Interview for Borderlines criteria and had multiple parasuicides with at least one within the 8 weeks preceding treatment. They hypothesised that: (1) when patients rated therapists as simultaneously controlling, nurturing and giving autonomy, suicidal behaviour would decrease in the following week; (2) increases in therapist ratings of patients' warm feelings towards the therapists would be followed by decreases in suicidal behaviour; (3) when patients rated therapists as nurturing and protecting, therapists would rate patient behaviours as higher on self-care; (4) patients would rate therapists as higher on warmth and friendliness in the week after less (not more) suicidal behaviour. The outcomes measured were: (1) interpersonal behaviour using patient self-rating and therapist ratings on the same day each week for the first 31 weeks of treatment (Structural Analysis of Social Behaviour short version (SASB) INTRAX form - three dimensional method of classifying interpersonal behaviour; (2) parasuicide and parasuicidal urges and ideation recorded daily by patient and validated and scrutinised weekly by the therapist (diary card kept by patient).

Wandel & Prince (1991) through a single case study describe their experience caring for a patient with borderline personality disorder and intellectual impairment in an emergency unit. The outcomes measured from casenote material were: (1) the frequency and severity of behavioural disturbance; (2) number of outbursts of temper and/or aggression.

Table 18: Description of intervention for case studies

Study	Nature of intervention	Who carried out the intervention
Rogers & Vidgen (1997)	Weekly treatment including assessment. Total 29 sessions, 20 hours of nurse-therapist time. Treatment consisted of agreeing and setting homework of daily graded self-exposure of fears for a minimum of one hour until they diminished	Clinical Nurse Specialist in Behavioural Psychotherapy
Shearin & Linehan (1992)	Standard dialectical behaviour therapy	Graduate students in psychology and nursing taking their first DBT patient
Wandel & Prince (1991)	Emergency care contract which clearly specified the terms and contingencies for EU visits, provided a needed framework for which patient could learn to solve problems, think more clearly and deal with frustrations of EU care	Primary nurse

Table 19: Results from case studies

Study	Results										
Rogers & Vidgen (1997)	Problems and targets										
		Pre	mid 1	mid 2	post	1 month	3 months	6 months			
	Main problem	7	4	2	2	2	3	2			
	Target A1	7	4	2	2	0	2	1			
	Target A2	8	4	2	0	0	0	0			
	Target A3	8	6	6	2	2	3	1			
	Fear										
					Pre	mid 1	mid 2	post	1 month	3 months	6 months
	Total avoidance score				75	59	52	38	42	44	30
	Anxiety and depression score				32	1	6	20	8	1	3
	Global phobia score				8	4	2	2	2	2	2
	Work and social adjustment										
			Pre	mid 1	mid 2	post	1 month	3 months	6 months		
	Work		7	4	0	4	1	0	0		
	Home management		6	4	4	2	0	2	2		
	Social leisure		8	4	4	0	1	1	1		
	Private leisure		4	4	2	2	1	1	0		
	Relationships		2	2	2	0	0	0	0		
	Depression										
	Beck Depression Inventory										
		Pre	mid 1	mid 2	post	1 month	3 months	6 months			
	BDI	37	14	8	31	6	6	5			
	The client made gradual but steady progress in exposing herself to avoidance's caused by her fears										

Table 19 (cont): Results from case studies

Study	Results
Shearin & Linehan (1992)	<p>50% SASB ratings missing 83% weeks of the diary card data were available no association found between missing SASB data and patients suicidal state</p> <p><i>dialectical hypothesis</i> results from patient 1 and 2 supported – increased patient ratings that the therapist was instructing, controlling and providing autonomy were associated with decreased suicidal behaviour in the following week for these two patients combining significant and non-significant results the hypothesis was supported overall ($X^2(8)=25.68$ $p<0.001$)</p> <p><i>non-pejorative hypothesis</i> results from patients 1 and 4 supported the hypothesis – increased therapist ratings that the patient liked the therapist were followed by decreased suicidal behaviour in the following week for those two patients (for patient 3 it was opposite) combining significant and non-significant results the hypothesis was supported overall ($X^2(8)=17.26$ $p<0.05$)</p> <p><i>modelling hypothesis</i> results from patients 1, 2 and 4 supported the hypothesis – these three patients demonstrated an effect of therapist modelling on self-care combining significant and non-significant results the hypothesis was supported overall ($X^2(8)=28.69$ $p<0.001$)</p> <p><i>contingency timing hypothesis</i> results from patients 2 and 4 supported the hypothesis – notably only these patients reported parasuicide during the study combining significant and non-significant results the hypothesis was supported overall ($X^2(8)=29.46$ $p<0.001$)</p>
Wandel & Prince (1991)	Number of outbursts of temper and/or aggression steadily declined

7.1.5.2 Scope of case studies

In two case studies the intervention was performed solely by a nurse (Rogers & Vidgen, 1997; Wandel & Price, 1991) and in the remaining one (Shearin & Linehan, 1992) the intervention was by mixed disciplines, with nurses delivering the intervention to varying degrees. One study (Rogers & Vidgen, 1997) was undertaken in forensic mental health care: a medium secure unit.

The three case studies all utilised different forms of intervention. One nursing only study used individual behavioural therapy (Rogers & Vidgen, 1997) and the other an emergency care contract (Wandel & Price, 1991). The mixed disciplines study used individual dialectical behaviour therapy (Shearin & Linehan, 1992).

One study confirmed DSM borderline personality disorder diagnosis (Shearin & Linehan, 1992). It appeared that the researchers/program staff recruited patients in all three studies. All three studies included only female patients. Samples sizes ranged from one to four.

The three studies measured outcomes from two of the standard outcome categories:

- **change in symptoms** (fear¹, depression¹)
- **change in social functioning and/or disability** (parasuicide and suicide urges², number of outbursts of temper and/or aggression³, frequency and severity of behavioural disturbance³, interpersonal behaviour², work and social adjustment¹, problems and targets¹).

Length of follow-up for Rogers & Vidgen (1997) was six months post-treatment. For the other two studies it was not adequately reported.

7.1.5.3 Quality of case studies

No attempt was made to examine the quality of the case studies.

7.1.5.4 Effect sizes from case studies

It was not possible to determine effect for any of the three studies.

7.1.5.5 Synthesis of case studies

It remains difficult to draw any firm conclusions from these three cases studies. In one study (Rogers & Vidgen, 1997) the intervention was provided by a trained nurse therapist, however, treatment fidelity was not reported. In Shearin & Linehan (1992) the intervention was given by trainee therapists and treatment fidelity was ensured through supervision.

¹ Rogers & Vidgen (1997)

² Shearin & Linehan (1992)

³ Wandel & Prince (1991)

A positive effect was reported for the outcome categories of change in symptoms in one nursing only study (Rogers & Vidgen, 1997); and for change in social functioning and/or disability in one mixed disciplines study (Shearin & Linehan, 1992) and one nursing only study (Rogers & Vidgen, 1997). The remaining nursing only study (Wandel & Prince, 1991) reported insufficient data to assess effect.

In relation to the outcome categories more specifically:

- ***change in symptoms*** - Rogers & Vidgen (1997) reported a decrease in fear and depression.
- ***change in social functioning and/or disability*** – Shearin & Linehan (1992) reported a significant decrease in parasuicide and suicide urges and an increase in interpersonal behaviour. Rogers & Vidgen (1997) reported an increase in work and social adjustment and problems and targets.

Generally these studies add little evidence to the review owing to the small sample numbers in the case studies. However, it appears that increased use of single case methodology of the type used by Rogers & Vidgen (1997) may prove useful for future research, especially considering it was undertaken within forensic mental health care. However, use of this methodology would need to be hypotheses generating and aimed at testing further with research methodologies that are less prone to bias.

8 CONCLUSION

From the outset of this systematic review of the literature it was anticipated that the evidence base would be limited. However, it was surprising that as many as 20 papers from 18 studies met the inclusion criteria for the review. Data have been presented relative to the hierarchy of evidence as suggested by the Centre for Reviews and Dissemination at York.

It should be borne in mind that only five of the studies were nursing only intervention (O'Brien *et al.*, 1985; Cremin *et al.*, 1995; Tennant & Hughes, 1998; Rogers & Vidgen, 1997; Wandel & Prince, 1991) and that generally the study quality or data reporting was so poor that these add little evidence to the review. The remaining 11 studies were all mixed disciplines intervention with a varied nursing contribution (Bateman & Fonagy, 1999; Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999; Piper *et al.*, 1993; Chiesa *et al.*, 1996; Chiesa & Fonagy, 2000; Meares *et al.*, 1999; Budman *et al.*, 1996; Chiesa, 2000; Donnelly & Guy, 1998; Hughes *et al.*, 1997; Nehls, 1991 and Nehls, 1992; Stevenson & Meares, 1992; Shearin & Linehan, 1992).

8.1 Study quality

Overall methodological quality of the 18 included studies was poor and this should be borne in mind when interpreting the results. For the randomised controlled trials, non-randomised controlled trials, and before-and-after studies quality was assessed using criteria suggested by the NHS Centre for Reviews and Dissemination (1996), Verhagen *et al.* (1998) and Clarke and Oxman (2000). No attempt was made to examine the quality of the case studies.

The randomised controlled trials were considered low in terms of quality of randomisation, sample size, loss to follow-up and analysis. This was particularly true for the one nursing only intervention trial (O'Brien *et al.*, 1985), which reports only very scanty information towards the end of the paper, to what the authors describe as a pilot study. Applying the Clarke and Oxman (2000, p.41) criteria all studies were graded as C, where there is a high risk of bias that seriously weakens confidence in the results. All four studies are susceptible to selection, performance and attrition biases; and to a lesser extent but still susceptible to detection bias.

The non-randomised controlled trials were considered moderate in terms of quality of baseline and drop-out rate comparability and completeness of follow-up. However, all studies are susceptible to performance and detection bias.

The before-and-after studies were all considered low in terms of quality of blinding of assessors and length of follow-up.

8.2 Participants

Eight of the 18 included studies (three randomised controlled trials; two non-randomised controlled trials; two before-and-after studies; and one case study) included high proportions of, or only patients with borderline personality disorder. One randomised controlled trial (Piper *et al.*, 1993)

included many patients with no diagnosis of personality disorder (intervention 38% and control 43%).

Eleven of the 18 studies confirmed DSM diagnosis: three randomised controlled trials; two non-randomised controlled trials; five before-and-after studies; and one case study.

In 11 of the 18 studies a high percentage of patients were women: three randomised controlled trials; two non-randomised controlled trials; three before-and-after studies; and all three case studies.

There was a wide range of sample sizes for the 18 studies, from one to 120. For the randomised controlled trials these ranged from four to 120. For the non-randomised controlled trials these ranged from ten to 90. For the before-and-after studies these ranged from seven to 81. For the case studies these ranged from one to four. Table 20 provides a summary of the participants.

	RCT	Non-RCT	Before & After	Case Study
High percentage, or only borderline personality disorder	3	2	2	1
Many patients no personality disorder diagnosis	1	0	0	0
Confirmed DSM diagnosis	3	2	5	1
High percentage women	3	2	3	3
Sample size	4 to 120	10 to 90	7 to 81	1 to 4

Table 20: Summary of participants

8.3 Follow-up

There was a wide range in the length of follow-up within the 18 included studies. For the randomised controlled trials this ranged from six weeks to 18 months end of treatment time; and eight months post-treatment to 24 months post treatment (which seemed to include treatment time). For the non-randomised controlled trials this ranged from three weeks post admission to 17 months (which included treatment time). For the before-and-after studies this ranged from ten weeks post-treatment to 18 months (completion of treatment). For the case studies this was six months post-treatment (reported in one of the three studies).

Therefore, follow-up in the included studies was generally only until the end of active treatment time.

8.4 Intervention

A wide range of interventions were utilised in the 18 studies and Table 21 provides a summary of the these. Predominately in the mixed disciplines studies a form of psychotherapy was the intervention under investigation and in the nursing only studies an approach to management.

Nursing only intervention	Study type	Intervention	Control
O'Brien et al. (1985)	RCT	Treatment contract	Nursing care as usual
Cremin et al. (1995)	Non-RCT	Nursing challenge	Retrospective group
Tennant & Hughes (1998)	Before- and-after	Group therapy	
Rogers & Vidgen (1997)	Case study	Cognitive behavioural therapy	
Wandel & Prince (1991)	Case study	Emergency care contract	
Mixed disciplines intervention			
Bateman & Fonagy (1999)	RCT	Group and individual psychotherapy and therapeutic milieu	TAU
Munroe-Blum & Marziali (1995) and Marziali et al. (1999)	RCT	Group psychotherapy	Individual psychotherapy TAU
Piper et al. (1993)	RCT	Group psychotherapy	Delayed treatment
Chiesa et al. (1996)	Non-RCT	Group and individual psychotherapy and therapeutic milieu	Pre-treatment group
Chiesa & Fonagy (2000)	Non-RCT	Group and individual psychotherapy and therapeutic milieu during 6 month admission – followed by outpatient group psychotherapy and psychosocial nursing	Group and individual psychotherapy and therapeutic milieu during 12-18 month admission followed by no community support
Meares et al. (1999)	Non-RCT	Individual psychotherapy	Waiting list TAU
Budman et al. (1996)	Before-and-after	Group psychotherapy	
Chiesa (2000)	Before-and-after	Individual psychotherapy and therapeutic milieu	
Donnelly & Guy (1998)	Before-and-after	Cognitive behavioural therapy	
Hughes et al. (1997)	Before-and-after	Group therapy, individual support and therapeutic milieu	
Nehls (1991) and Nehls (1992)	Before-and-after	Group therapy	
Stevenson & Meares (1992)	Before-and-after	Individual psychotherapy	
Shearin & Linehan (1992)	Case study	Dialectical behaviour therapy	

Table 21: Summary of intervention

To summarise these interventions these can be viewed as either:

- **Group** (group therapy and group psychotherapy) - nursing only before-and-after study (Tennant & Hughes, 1998), mixed disciplines RCT (Munroe-Blum & Marziali, 1995 and Marziali *et al.*, 1999; Piper *et al.*, 1993), mixed disciplines before-and-after study (Budman *et al.*, 1996; Nehls, 1991 and Nehls, 1992)

- **Individual** (individual psychotherapy) - mixed disciplines non-RCT (Meares *et al.*, 1999), mixed disciplines before-and-after study (Stevenson & Meares, 1992)
- **Mixed** (mixtures of individual and group psychotherapy and therapeutic milieu) – mixed disciplines RCT (Bateman & Fonagy, 1999), mixed disciplines non-RCT (Chiesa *et al.*, 1996; Chiesa & Fonagy, 2000), mixed disciplines before-and-after study (Chiesa, 2000; Hughes *et al.*, 1997)
- **Cognitive behavioural** (cognitive behavioural therapy and dialectical behaviour therapy) - nursing only case study (Rogers & Vidgen, 1997), mixed disciplines before-and-after study (Donnelly & Guy, 1998), mixed disciplines case study (Shearin & Linehan, 1992)
- **Management** (treatment contract, nursing challenge and emergency care contract) - nursing only RCT (O'Brien *et al.*, 1985), nursing only non-RCT (Cremin *et al.*, 1995), nursing only case study (Wandel & Prince, 1991)

8.5 Treatment fidelity

In two randomised controlled trials therapists were formally trained to carry out the intervention: in one reliability of the training was measured. In two non-randomised controlled trials it was reported that formal training was given to carry out the intervention. In one before-and-after study it was apparent that training was given to carry out the intervention and in one training was given during the course of the intervention. In three before-and-after studies the intervention was provided by experienced facilitators. In one case study the intervention was given by a trained nurse therapist and in the other two by trainee therapists.

Three randomised controlled trials measured treatment fidelity, two through supervision and one through compliance. One non-randomised controlled trial measured treatment fidelity through supervision. Three before-and-after studies measured treatment fidelity through supervision and in one it was integral to the research evaluation. Two case studies ensured treatment fidelity through supervision.

The above indicates that the quality of treatment fidelity assessments in all the included studies was poor. Aside from those studies which used a formal supervision process, no independent measure of treatment integrity was used in any of the studies. Even supervision cannot be said to be entirely aimed at treatment integrity, since its objective is often professional support and staff development. The use of training, experienced therapists or supervision is insufficient evidence of treatment fidelity without independent assessments through audio tape recordings, diaries or videos. There are important implications, therefore, when interpreting the results. The lack of measures of treatment fidelity in all studies limits the certainty with which this review can confirm that the outcomes of the intervention are not a result of other confounding variables, particularly in the non-randomised studies included in the review. Furthermore, such considerations also limit the extent to which the interventions can be reliably generalised to other clinical environments.

8.6 Outcomes measured

The 18 studies included in the review measured a total of 62 separate outcomes condensed into four standard outcome categories, and “other” for those outcomes falling outside of these: change in social functioning and/or disability (31 outcomes); change in service usage (seven outcomes); change in symptoms (six outcomes); change in personality disorder status (five outcomes); and other (13 outcomes). Annexe 6 summarises the outcomes which were condensed into each category.

From the five nursing only intervention studies two of the four outcome categories were measured: change in social functioning and/or disability and change in symptoms. From the 11 mixed disciplines intervention studies all four outcomes categories were measured: change in service usage; change on personality disorder status; change in symptoms; and change in social functioning and/or disability. In relation to type of study all four outcome groupings were measured: change in service usage; change on personality disorder status; change in symptoms; and change in social functioning and/or disability. Table 22 provides a summary of outcome categories measured by nursing only and mixed disciplines intervention in relation to type of study.

Outcome category	Intervention	RCT	Non-RCT	Before-&-after	Case study
Change in service usage	Mixed disciplines	2	1	1	
	Nursing only				
Change on personality disorder status	Mixed disciplines		2	2	
	Nursing only				
Change in symptoms	Mixed disciplines	3	1	4	
	Nursing only				1
Change in social functioning and/or disability	Mixed disciplines	3	3	4	1
	Nursing only	1	1	1	2

Table 22: Summary of outcome categories measured by nursing only and mixed disciplines intervention in relation to type of study

8.7 Forensic mental health care studies

Four of the 18 included studies were undertaken within forensic mental health settings: three before-and-after studies, all within high security male wards; and one case study in a medium secure unit. Two of these were nursing only studies: one before-and-after study (Tennant & Hughes, 1998) and one case study (Rogers & Vidgen, 1997). The remaining two were mixed disciplines before-and-after studies (Donnelly & Guy, 1998; Hughes *et al.*, 1997).

8.8 Treatment/outcome results

8.8.1 Study design

In relation to the study design positive outcomes were reported by some studies for all four outcome categories:

- *change in service usage* – one RCT, one non-RCT, one before-and-after study
- *change in personality disorder status* – two non-RCTs, two before-and-after studies
- *change in symptoms* – two RCTs, one non-RCT, three before-and-after studies, one case study
- *change in social functioning and/or disability* – two RCTs, one non-RCT, three before-and-after studies, two case studies

However, in relation to study design other studies reported no effect in three of the four outcome categories:

- *change in service usage* – one RCT, one non-RCT
- *change in symptoms* – one RCT, one before-and-after study
- *change in social functioning and/or disability* – one RCT, two before-and-after studies

Change in service usage - In one RCT Bateman & Fonagy (1999) reported a significant reduction in both the number and duration of inpatient admissions and the use of psychotropic medication. In one non-RCT Chiesa *et al.* (1996) reported a significant reduction in the use of medical, surgical and psychiatric services (visits to A&E, admission to general hospital for medical or surgical intervention, laboratory investigations, psychiatric readmission, and outpatient psychiatric care). In one before-and-after study Stevenson & Meares (1992) reported a significant reduction in visits to medical professionals (large effect); hospital admission (medium effect) and duration of in-patient time (medium effect). From one RCT Marziali *et al.* (1999) reported no significant difference in the level of service utilisation. From one non-RCT Chiesa *et al.* (1996) reported no significant difference in the use of psychotropic medication.

Change in personality disorder status - In one non-RCT Chiesa & Fonagy (2000) reported a significant reduction in borderline status. In one non-RCT Meares *et al.* (1999) in the number of DSM criteria for personality disorder. In one before-and-after study Budman *et al.* (1996) reported a significant reduction in one of the big 5 personality factors (emotional stability) and personality disorder. In one before-and-after study Stevenson & Meares (1992) reported a significant reduction in the number of DSM III criteria for personality disorder (large effect).

Change in symptoms - In one RCT Bateman & Fonagy (1999) reported a significant reduction in the level of depression (large effect³), anxiety (large effect for state anxiety and medium effect for trait anxiety) and general symptoms of distress (small effect for global severity and less than a small effect for positive symptoms). In one RCT Piper *et al.* (1993) reported a significant reduction in

³ Bateman & Fonagy (1999) effect sizes relate to end of active treatment.

psychiatric symptoms (large effect for mood level and small effect for mood reactivity⁴). In one non-RCT Chiesa & Fonagy (2000) reported a significant reduction in symptomatic distress (small effect). In one before-and-after study Budman *et al.* (1996) reported a significant reduction in patient symptomatic distress and psychiatric disturbance. In one before-and-after study Chiesa (2000) reported a significant reduction in symptomatic distress. In one before-and-after study Stevenson & Meares (1992) reported a significant reduction in symptoms (large effect). In one case study Rogers & Vidgen (1997) reported a decrease in fear and depression. From one RCT Munroe-Blum & Marziali (1995) and Marziali *et al.* (1999) reported no significant difference in clinical symptom status. From one before-and-after study Donnelly & Guy (1998) reported no significant difference in anxiety.

Change in social functioning and/or disability - In one RCT Bateman & Fonagy (1999) reported a significant reduction in both the frequency of suicide attempts and acts of self-harm, and a significant increase in interpersonal function (large effect) and social adjustment. In one RCT Piper *et al.* (1993) reported a significant increase in self-esteem (large effect), life satisfaction (large effect) and interpersonal function (large effect for positive interpersonal behaviour; medium effect for social dysfunction, family dysfunction and number of friends; small effect for sexual dysfunction, emotional reliance, and pathological attachment; and less than a small effect for satisfaction with friends), and a significant reduction in the severity of disturbance (large effect rated by assessor and less than a small effect rated by patient) and defensive functioning (medium effect for adaptive defences and small effect for maladaptive defences). In one non-RCT Chiesa & Fonagy (2000) reported a significant reduction in general level of functioning (medium effect), and an increase in social adjustment (medium effect) and employment. In one before-and-after study Budman *et al.* (1996) reported a significant increase in self-esteem, interpersonal functioning, social functioning, and importance and severity of problems. In one before-and-after study Chiesa (2000) reported a significant increase in patient functioning, general functioning and social adjustment. In one before-and-after study Stevenson & Meares (1992) reported a significant decrease in episodes of violence (small effect) and self-harm (medium effect), and time away from work (medium effect). In one case study Shearin & Linehan (1992) reported a significant decrease in parasuicide and suicide urges and an increase in interpersonal behaviour. In one case study Rogers & Vidgen (1997) reported an increase in work and social adjustment and problems and targets. From one RCT Munroe-Blum & Marziali (1995) and Marziali *et al.* (1999) reported no significant difference in both behavioural dysfunction and social performance. From one before-and-after study Budman *et al.* (1996) reported no significant difference in perceived social support, and defensive style. From one before-and-after study Donnelly & Guy reported no significant difference in social comparison, impulsiveness and alternative thinking.

In one remaining before-and-after study (Hughes *et al.*, 1997) significant clinical gain was found.

8.8.2 Meta-analysis

Notwithstanding the generally poor quality of all types of studies, attempts were made to synthesise outcome data using forest plots. However, because of widely divergent measurement instruments

⁴ Piper *et al.* (1993) effect sizes relate to end of follow-up period.

used it was not possible to combine effect sizes across studies. Nonetheless, for each outcome category effect sizes have been plotted on forest plots for the three mixed disciplines studies which supplied sufficient data to allow this (see Annexe 7:). It should be noted that caution should be exerted when interpreting these.

In summary the forest plots show:

- ***change in service usage*** – large effects from the one before-and-after study
- ***change in personality disorder status*** – large effect from the one before-and-after study
- ***change in symptoms*** – small to large effects from the one RCT, one non-RCT, and one before-and-after study
- ***change in social functioning and/or disability*** – small to large effects from the one RCT, one non-RCTs, and one before-and-after study

8.8.3 *Nursing only versus mixed disciplines intervention*

From the nursing only intervention studies positive outcomes were reported by one study for two of the outcome categories:

- ***change in symptoms*** – one case study
- ***change in social functioning and/or disability*** – one case study

Change in symptoms - In one nursing only case study Rogers & Vidgen (1997) reported a decrease in fear and depression.

Change in social functioning and/or disability - In one nursing only case study Rogers & Vidgen (1997) reported an increase in work and social adjustment and problems and targets.

From the mixed disciplines intervention studies positive outcomes were reported by some studies for all four outcome categories:

- ***change in service usage*** – one RCT, one non-RCT, one before-and-after study
- ***change in personality disorder status*** – two non-RCT, two before-and-after studies
- ***change in symptoms*** – two RCTs, one non-RCT, three before-and-after studies
- ***change in social functioning and/or disability*** – two RCTs, one non-RCT, three before-and-after studies, one case study

However, from some of the mixed disciplines intervention studies no effect was reported in three of the four outcome categories:

- ***change in service usage*** – one RCT, one non-RCT
- ***change in symptoms*** – one RCT, one before-and-after study
- ***change in social functioning and/or disability*** – one RCT, two before-and-after studies

Change in service usage - In one mixed disciplines RCT Bateman & Fonagy (1999) reported a significant reduction in both the number and duration of inpatient admissions and the use of psychotropic medication. In one mixed disciplines non-RCT Chiesa *et al.* (1996) reported a significant reduction in the use of medical, surgical and psychiatric services (visits to A&E, admission to general hospital for medical or surgical intervention, laboratory investigations, psychiatric readmission, and outpatient psychiatric care). In one mixed disciplines before-and-after study Stevenson & Meares (1992) reported a significant reduction in visits to medical professionals (large effect); hospital admission (medium effect) and duration of in-patient time (medium effect). From one mixed disciplines RCT Marziali *et al.* (1999) reported no significant difference in the level of service utilisation. From one mixed disciplines non-RCT Chiesa *et al.* (1996) reported no significant difference in the use of psychotropic medication.

Change in personality disorder status - In one mixed disciplines non-RCT Chiesa & Fonagy (2000) reported a significant reduction in borderline status. In one mixed disciplines non-RCT Meares *et al.* (1999) in the number of DSM criteria for personality disorder. In one mixed disciplines before-and-after study Budman *et al.* (1996) reported a significant reduction in one of the big 5 personality factors (emotional stability) and personality disorder. In one mixed disciplines before-and-after study Stevenson & Meares (1992) reported a significant reduction in the number of DSM III criteria for personality disorder (large effect).

Change in symptoms - In one mixed disciplines RCT Bateman & Fonagy (1999) reported a significant reduction in the level of depression (large effect⁵), anxiety (large effect for state anxiety and medium effect for trait anxiety) and general symptoms of distress (small effect for global severity and less than a small effect for positive symptoms). In one mixed disciplines RCT Piper *et al.* (1993) reported a significant reduction in psychiatric symptoms (large effect for mood level and small effect for mood reactivity⁶). In one mixed disciplines non-RCT Chiesa & Fonagy (2000) reported a significant reduction in symptomatic distress (small effect). In one mixed disciplines before-and-after study Budman *et al.* (1996) reported a significant reduction in patient symptomatic distress and psychiatric disturbance. In one mixed disciplines before-and-after study Chiesa (2000) reported a significant reduction in symptomatic distress. In one mixed disciplines before-and-after study Stevenson & Meares (1992) reported a significant reduction in symptoms (large effect). From one mixed disciplines RCT Munroe-Blum & Marziali (1995) and Marziali *et al.* (1999) reported no significant difference in clinical symptom status. From one mixed disciplines before-and-after study Donnelly & Guy (1998) reported no significant difference in anxiety.

Change in social functioning and/or disability - In one mixed disciplines RCT Bateman & Fonagy (1999) reported a significant reduction in both the frequency of suicide attempts and acts of self-harm, and a significant increase in interpersonal function (large effect) and social adjustment. In one mixed disciplines RCT Piper *et al.* (1993) reported a significant increase in self-esteem (large effect), life satisfaction (large effect) and interpersonal function (large effect for positive interpersonal behaviour; medium effect for social dysfunction, family dysfunction and number of friends; small effect for sexual dysfunction, emotional reliance, and pathological attachment; and less than a small

⁵ Bateman & Fonagy (1999) effect sizes relate to end of active treatment.

⁶ Piper *et al.* (1993) effect sizes relate to end of follow-up period.

effect for satisfaction with friends), and a significant reduction in the severity of disturbance (large effect rated by assessor and less than a small effect rated by patient) and defensive functioning (medium effect for adaptive defences and small effect for maladaptive defences). In one mixed disciplines non-RCT Chiesa & Fonagy (2000) reported a significant reduction in general level of functioning (medium effect), and an increase in social adjustment (medium effect) and employment. In one mixed disciplines before-and-after study Budman *et al.* (1996) reported a significant increase in self-esteem, interpersonal functioning, social functioning, and importance and severity of problems. In one mixed disciplines before-and-after study Chiesa (2000) reported a significant increase in patient functioning, general functioning and social adjustment. In one mixed disciplines before-and-after study Stevenson & Meares (1992) reported a significant decrease in episodes of violence (small effect) and self-harm (medium effect), and time away from work (medium effect). In one mixed disciplines case study Shearin & Linehan (1992) reported a significant decrease in parasuicide and suicide urges and an increase in interpersonal behaviour. From one mixed disciplines RCT Munroe-Blum & Marziali (1995) and Marziali *et al.* (1999) reported no significant difference in both behavioural dysfunction and social performance. From one mixed disciplines before-and-after study Budman *et al.* (1996) reported no significant difference in perceived social support, and defensive style. From one mixed disciplines before-and-after study Donnelly & Guy reported no significant difference in social comparison, impulsiveness and alternative thinking.

In one remaining mixed disciplines before-and-after study (Hughes *et al.*, 1997) significant clinical gain was found.

8.8.4 Forensic mental health care studies

There was evidence reported from one mixed disciplines before-and-after study (Hughes *et al.*, 1997) of significant clinical gain, and from one nursing only case study (Rogers & Vidgen, 1997) for change in symptoms, and change in social functioning and/or disability.

8.8.5 Effectiveness of intervention

8.8.5.1 Group intervention

In relation to group intervention positive outcomes were reported by some studies for three of the four outcome categories:

- **change in personality disorder status** – one mixed disciplines before-and-after study
- **change in symptoms** – one mixed disciplines RCT; one mixed disciplines before-and-after study
- **change in social functioning and/or disability** – one mixed disciplines RCT; one mixed disciplines before-and-after study

However, in relation to group intervention other studies reported no effect in three of the four outcome categories:

- **change in service usage** – one mixed disciplines RCT

- ***change in symptoms*** – one mixed disciplines RCT
- ***change in social functioning and/or disability*** – one mixed disciplines RCT; one mixed disciplines before-and-after study

Change in service usage – From one mixed disciplines RCT Marziali *et al.* (1999) reported no significant difference in the level of service utilisation.

Change in personality disorder status - In one mixed disciplines before-and-after study Budman *et al.* (1996) reported a significant reduction in one of the big 5 personality factors (emotional stability) and personality disorder.

Change in symptoms - In one mixed disciplines RCT Piper *et al.* (1993) reported a significant reduction in psychiatric symptoms (large effect for mood level and small effect for mood reactivity⁷). In one mixed disciplines before-and-after study Budman *et al.* (1996) reported a significant reduction in patient symptomatic distress and psychiatric disturbance. From one mixed disciplines RCT Munroe-Blum & Marziali (1995) and Marziali *et al.* (1999) reported no significant difference in clinical symptom status.

Change in social functioning and/or disability - In one mixed disciplines RCT Piper *et al.* (1993) reported a significant increase in self-esteem (large effect), life satisfaction (large effect) and interpersonal function (large effect for positive interpersonal behaviour; medium effect for social dysfunction, family dysfunction and number of friends; small effect for sexual dysfunction, emotional reliance, and pathological attachment; and less than a small effect for satisfaction with friends), and a significant reduction in the severity of disturbance (large effect rated by assessor and less than a small effect rated by patient) and defensive functioning (medium effect for adaptive defences and small effect for maladaptive defences). In one mixed disciplines before-and-after study Budman *et al.* (1996) reported a significant increase in self-esteem, interpersonal functioning, social functioning, and importance and severity of problems.

From one mixed disciplines RCT Munroe-Blum & Marziali (1995) and Marziali *et al.* (1999) reported no significant difference in both behavioural dysfunction and social performance. From one mixed disciplines before-and-after study Budman *et al.* (1996) reported no significant difference in perceived social support, and defensive style.

8.8.5.2 *Individual intervention*

In relation to individual intervention positive outcomes were reported by some studies for all four outcome categories:

- ***change in service usage*** – one mixed disciplines before-and-after study
- ***change in personality disorder status*** – one mixed disciplines non-RCT; one mixed disciplines before-and-after study
- ***change in symptoms*** – one mixed disciplines before-and-after study

⁷ Piper *et al.* (1993) effect sizes relate to end of follow-up period.

- ***change in social functioning and/or disability*** – one mixed disciplines before-and-after study

Change in service usage - In one mixed disciplines before-and-after study Stevenson & Meares (1992) reported a significant reduction in visits to medical professionals (large effect); hospital admission (medium effect) and duration of in-patient time (medium effect).

Change in personality disorder - In one mixed disciplines non-RCT Meares *et al* (1999) in the number of DSM criteria for personality disorder. In one mixed disciplines before-and-after study Stevenson & Meares (1992) reported a significant reduction in the number of DSM III criteria for personality disorder (large effect).

Change in symptoms - In one mixed disciplines before-and-after study Stevenson & Meares (1992) reported a significant reduction in symptoms (large effect).

Change in social functioning and/or disability - In one mixed disciplines before-and-after study Stevenson & Meares (1992) reported a significant decrease in episodes of violence (small effect) and self-harm (medium effect), and time away from work (medium effect).

8.8.5.3 *Mixed intervention*

In relation to mixed intervention positive outcomes were reported by some studies for all four outcome categories:

- ***change in service usage*** – one mixed disciplines RCT; one mixed disciplines non-RCT
- ***change in personality disorder status*** – one mixed disciplines non-RCT
- ***change in symptoms*** – one mixed disciplines RCT; one mixed disciplines non-RCT; one mixed disciplines before-and-after study
- ***change in social functioning and/or disability*** – one mixed disciplines RCT; one mixed disciplines non-RCT; one mixed disciplines before-and-after study

However, in relation to mixed intervention other studies reported no effect in one of the four outcome categories:

- ***change in service usage*** – one mixed disciplines non-RCT

Change in service usage - In one mixed disciplines RCT Bateman & Fonagy (1999) reported a significant reduction in both the number and duration of inpatient admissions and the use of psychotropic medication. In one mixed disciplines non-RCT Chiesa *et al* (1996) reported a significant reduction in the use of medical, surgical and psychiatric services (visits to A&E, admission to general hospital for medical or surgical intervention, laboratory investigations, psychiatric readmission, and outpatient psychiatric care). From one mixed disciplines non-RCT Chiesa *et al*. (1996) reported no significant difference in the use of psychotropic medication.

Change in personality disorder status - In one mixed disciplines non-RCT Chiesa & Fonagy (2000) reported a significant reduction in borderline status.

Change in symptoms - In one mixed disciplines RCT Bateman & Fonagy (1999) reported a significant reduction in the level of depression (large effect⁸), anxiety (large effect for state anxiety and medium effect for trait anxiety) and general symptoms of distress (small effect for global severity and less than a small effect for positive symptoms). In one mixed disciplines non-RCT Chiesa & Fonagy (2000) reported a significant reduction in symptomatic distress (small effect). In one mixed disciplines before-and-after study Chiesa (2000) reported a significant reduction in symptomatic distress.

Change in social functioning and/or disability - In one mixed disciplines RCT Bateman & Fonagy (1999) reported a significant reduction in both the frequency of suicide attempts and acts of self-harm, and a significant increase in interpersonal function (large effect) and social adjustment. In one mixed disciplines non-RCT Chiesa & Fonagy (2000) reported a significant reduction in general level of functioning (medium effect), and an increase in social adjustment (medium effect) and employment. In one mixed disciplines before-and-after study Chiesa (2000) reported a significant increase in patient functioning, general functioning and social adjustment.

In one remaining mixed disciplines before-and-after study (Hughes *et al.*, 1997) significant clinical gain was found.

8.8.5.4 Cognitive behavioural intervention

In relation to cognitive behavioural intervention positive outcomes were reported by some studies for two of the four outcome categories:

- ***change in symptoms*** – one nursing only case study
- ***change in social functioning and/or disability*** – one nursing only case study; one mixed disciplines before-and-after study

However, in relation to cognitive behavioural intervention other studies reported no effect in two of the four outcome categories:

- ***change in symptoms*** – one mixed disciplines before-and-after study
- ***change in social functioning and/or disability*** – one mixed disciplines before-and-after study

Change in symptoms - In one nursing only case study Rogers & Vidgen (1997) reported a decrease in fear and depression. From one mixed disciplines before-and-after study Donnelly & Guy (1998) reported no significant difference in anxiety.

⁸ Bateman & Fonagy (1999) effect sizes relate to end of active treatment.

Change in social functioning and/or disability - In one mixed disciplines case study Shearin & Linehan (1992) reported a significant decrease in parasuicide and suicide urges and an increase in interpersonal behaviour. In one nursing only case study Rogers & Vidgen (1997) reported an increase in work and social adjustment and problems and targets. From one mixed disciplines before-and-after study Donnelly & Guy reported no significant difference in social comparison, impulsiveness and alternative thinking.

8.8.5.5 Management intervention

In relation to management intervention, all studies provided insufficient data to assess effect.

8.9 Summary

This review had five objectives:

- (1) to conduct a systematic review of the effectiveness of nursing interventions with personality disorders

This review identified 18 studies of mental health care for people with personality disorders involving nurses. These studies consisted of four randomised controlled trials, four non-randomised controlled trials, seven before-and-after studies, and three case studies. Five of the studies tested nursing only interventions with the remaining 11 studies testing interventions delivered by mixed disciplines with a varied nursing contribution.

- (2) where possible meta-analyse all intervention studies which compare one intervention with another; or no intervention and treatment as usual

Meta-analysis proved difficult due to the heterogeneity of both interventions and outcome measures. Narrative synthesis showed that there is a weak evidence base for what constitutes effective nursing intervention with personality disorder. In the case of nursing only intervention studies positive effect was reported for two outcome categories but only from one single case study. There was insufficient evidence to determine effect from the other four nursing only intervention studies. There is stronger evidence from the mixed disciplines intervention studies with the strongest evidence being for change in symptoms, followed by change in social functioning and/or disability; then change in service usage and finally change on personality disorder status.

There is more evidence of improvement in the outcome categories from the psychological approach intervention studies than from the nursing management studies. In terms of specific interventions studied, the mixed and individual psychotherapy studies show the greatest level of improvement for all four outcome categories compared to group interventions and cognitive-behavioural therapy (CBT). However, CBT shows early promise but, like other approaches, but has yet to be tested properly in good quality trials.

Within the area of forensic mental health care there is evidence from two before-and-after studies and one case study where nurses have delivered interventions showing positive outcome.

- (3) to undertake an assessment of the internal validity (the extent to what they measure what they purport to measure) and the external validity (the extent to which the results are generalisable or applicable to clinical practice) of included studies

Overall methodological quality was poor with problems with the quality of randomisation, sample size, loss to follow-up and analysis in the randomised controlled trials giving a high risk of susceptibility to selection, performance, attrition and detection biases. The non-randomised controlled trials were of only moderate quality in terms of baseline and drop-out rate comparability and completeness of follow-up, rendering them susceptible to performance and detection bias. The before-and-after studies were of low quality in terms of blinding of assessors and length of follow-up. One of the case studies was a well designed before-and-after single case experimental design. Across all designs, therefore, there are problems with studies only following-up patients until the end of treatment, the inclusion of small sample sizes and high attrition.

External validity and generalisability is limited by the specialist nature of many of the experimental environments, the heterogeneity of interventions and by the lack of nursing management intervention studies.

- (4) to draw together the evidence base for nursing interventions with personality disorders

As above, the evidence is very limited. Nurses have participated in individual, group, mixed and cognitive behavioural psychotherapy trials with mixed success. Trials are equivocal even in outcome domains where the strongest evidence of effect exists – symptoms and social functioning – with some randomised controlled trial results in all domains failing to demonstrate a positive effect of the experimental intervention. The specific utility of any ‘nursing’ interventions cannot be supported by this review. No conclusions can be drawn, therefore, from the available studies to assist nurses implement evidenced based management interventions with personality disordered patients.

There is, however, a division between the studies included in relation to psychological approaches versus management approaches, and nursing only versus mixed disciplines input. Generally it is the management and nursing only approaches which have the poorest evidence base.

- (5) determine what future research needs to be done to build on this.

The evidence base for nursing interventions in personality disorder, whether conducted as part of a multi-professional delivery team or as a professionally unique endeavour, is flimsy. Unlike other areas of mental health care, for example cognitive behavioural and psychosocial interventions with neurosis and psychosis where there is a research tradition stretching back 30 years, nurses are not substantially involved in either research or delivery of evidence base care. As the single largest group of mental health care providers to this population, there is no reason to predict that nurses could not make a similar contribution within personality disorder treatment delivery.

There are, therefore, a number of implications for future research and practice which have emerged from this systematic review of the literature. These are very much focussed on developing the poor

evidence base that has been found from the nursing only intervention studies, which are predominantly patient management focussed.

1. Studies, including randomised controlled trials should be undertaken to examine and test approaches to nursing management in the day to day care of people with personality disorder. Research undertaken should be designed to answer the question it sets out to, and needs to be pragmatic in its design and administration. This will inevitably require greater collaboration between researchers and centres, but will allow access to greater sample sizes, also making results more generalisable
2. Better quality randomised controlled trials of all psychological therapy approaches involving multi-professional teams (including nurses) are needed in order to reduce the biases found in the studies in this review.
3. Research methodologies should be developed around practice-based evidence, such as that utilised in the single case experimental design used in one of the nursing only case studies in this review. However, use of this methodology would need to be hypotheses generating and aimed at testing further with research methodologies that are less prone to bias. This would facilitate the development of the scientist practitioner in nursing and encourage routine outcome measurement in clinical practice.
4. A standardised set of outcome measures covering the major domains identified from this review should be agreed and implemented for research, audit and clinical governance purposes. Outcome measures should be dichotomous and based on meaningful outcomes to patients and clinicians. This would address the difficulties found in this review of meta-analysing data from heterogeneous and incompatible outcome measures.
5. Cognitive and behavioural and psychosocial approaches to both psychotherapy and management should be tested in randomised controlled trials to capitalise on these developments for nursing in other mental health care fields. These trials may involve testing the efficacy of training approaches for mental health nurses working with people who have personality disorders.

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Annexe 1: Reviewers criteria for considering studies to be included

Types of study to be included:	Types of study to be excluded:
<ul style="list-style-type: none"> • Well-designed randomised controlled trials • Other types of trial (i.e. Well-designed controlled trial with pseudo-randomisation; Well-designed controlled trials with no randomisation) • Cohort studies (i.e. Well-designed cohort (prospective study) with concurrent controls; Well-designed cohort (prospective study) with historical controls; Well-designed cohort (retrospective study) with concurrent controls; Well-designed case-control (retrospective) study; Large differences from comparisons between times and/or places with and without intervention) • Descriptive studies 	<ul style="list-style-type: none"> • Opinions of respected authorities based on clinical experience; and reports of expert committees

Type of participant to be included:	Type of participant to be excluded:
<ul style="list-style-type: none"> • Any individual recorded with a personality disorder (however diagnosed); • Male and female; • 18-65 years; • In-patient settings and community 	None

Type of intervention to be included:	Type of intervention to be excluded:
Any nursing intervention aimed at reducing or alleviating behavioural repertoires associated with personality disorders. [include if nurses are one of a number of disciplines delivering the intervention]	Where the discipline delivering the intervention <u>specifically excludes</u> nursing (i.e. psychologist, therapist, etc)

Type of outcome measure to be included:	Type of outcome measure to be excluded:
Any	None

Please indicate on each study data sheet, by ticking the yes/no box, whether the criteria are met or not. If you consider it has not been please describe in the box the reason for this.

Annexe 2: Data Sheet For Meeting Inclusion Criteria

Study Details:

Study design meets inclusion criteria	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If no reason:		
Type of participant meets inclusion criteria	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If no reason:		
Type of intervention meets inclusion criteria	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If no reason:		
Is there an outcome measure	Yes <input type="checkbox"/>	No <input type="checkbox"/>
If no reason:		

Annexe 3: Data Extraction Sheet

Reference manager ID:

Title of paper:

Author(s):

Journal:

Date: Vol.: Part: Pages:

Address of first author:

Objective of paper

Target group

Setting

Outcomes

Description of Intervention

Nature (including timescale)

Study Objective/Hypothesis

Control

Agent (who carried out the intervention)

Organisation (the agents)

Study Design

Population

Study population

Sampling method

Entry and exclusion criteria

Representative of sample

Size of intervention and control groups

Comparability of intervention and control groups

Attrition from intervention and control groups

Measures and Instruments

Timing of measures

Nature of measures

Baseline

Instruments used

Were instruments validated?

Length of follow up

Statistics

What statistical tests were used?

Power Calculation?

Results

Conclusions

Author's conclusions

Reviewer's commentary

Generalisability of findings

Other comments

Annexe 4: Search Results

CINAHL 1982-1999/11

No	Records	Request
1	217280	nurs*
2	422	explode "personality disorders"
3	669	personality disorder*
4	1105	psychopath*
5	1728	#2 or #3 or #4
6	839	#1 and #5
7	80	mentally disordered offender*
8	221	reasoning and rehabilitation

EMBASE 1980-1999/11

No	Records	Request
1	43281	nurs*
2	13959	explode "personality disorders"
3	7077	personality disorder*
4	11762	psychopath*
5	24622	#2 or #3 or #4
6	323	#1 and #5
7	121	mentally disordered offender*
8	49	reasoning and rehabilitation

MEDLINE 1985-1999/12

No	Records	Request
1	212972	nurs*
2	8100	explode "personality disorders"
3	8962	personality disorder*
4	9250	psychopath*
5	17407	#2 or #3 or #4
6	355	#1 and #5
7	67	mentally disordered offender*
8	79	reasoning and rehabilitation

PsycINFO 1984-1999/11

No	Records	Request
1	18146	nurs*
2	6074	explode "personality disorders"
3	9226	personality disorder*
4	19166	psychopath*
5	28159	#2 or #3 or #4
6	313	#1 and #5
7	196	mentally disordered offender*
8	80	reasoning and rehabilitation

British Nursing Index (up to September 1999) and RCN Journals (1985 -)

No.	Records	Request
1	93806	nurs*
2	66	Personality disorder*
3	45	psychopath*
4	109	#2 or #3
5	48	#1 and #4
6	63	mentally disordered offender*
7	3	reasoning and rehabilitation

HMIC

No.	Records	Request
1	34188	nurs*
2	141	Personality disorder*
3	118	psychopath*
4	246	#2 or #3
5	16	#1 and #4
6	473	mentally disordered offender*
7	2	reasoning and rehabilitation

SIGLE (January 1980 to June 1999)

No.	Records	Request
1	18	personality disorder
2	63	psychopath
3	79	#1 or #2

The Cochrane and Dare databases

No.	Records	Request
1	4567	nurs*
2	1275	Personality disorder*
3	771	psychopath*
4	1960	#2 or #3
5	70	#1 and #4
6	6	mentally disordered offender*
7	5	reasoning and rehabilitation

Annexe 5: Reason for exclusion of study

Excluded studies	Design	Participant	Intervention	Outcome
Anonymous. (1994). Living and working with MPD. <i>Journal of Psychosocial Nursing and Mental Health Services</i> , 32(8), 17-22.	NO	NO	NO	NO
Aiken, F., Sharp, F. (1997). Containment and exploration: group psychodynamic psychotherapy for personality disordered patients in a secure setting (part I). <i>Psychiatric Care</i> , 4(2), 75-78.	NO	YES	NO	NO
Aiken, F., Sharp, F. (1997). Containment and exploration: group psychodynamic psychotherapy for personality disordered patients in a secure setting - part 2. <i>Psychiatric Care</i> , 4(3), 114-117.	NO	NO	YES	NO
Anderson, G., Ross, C.A. (1988). A model for psychiatric nurses in working with clients who have multiple personality disorder (MPD). <i>Canadian Journal of Psychiatric Nursing</i> , 29(4), 13-18.	NO	NO	YES	NO
Anderson, G. (1988). Understanding multiple personality disorder. <i>Journal of Psychosocial Nursing and Mental Health Services</i> , 26(7), 26-30.	NO	NO	YES	NO
Bornn, E.M. (1988). Multiple personality disorder. <i>Canadian Nurse</i> , 84(9), 16-19.	NO	NO	YES	NO
Breeze, J.A., Repper, J. (1998). Struggling for control: the care experiences of "difficult" patients in mental health services. <i>Journal of Advanced Nursing</i> , 28(6), 1301-1311.	NO	NO	NO	NO
Brett, TR. (1992). The Woodstock approach: One ward in Broadmoor Hospital for the treatment of personality disorder. <i>Criminal Behaviour and Mental Health</i> , 2(2), 152-158.	NO	NO	YES	NO
Brobyn, L.L. (1987). The borderline patient: systemic versus psychoanalytic approach. Part I: Description of the patient. <i>Archives of Psychiatric Nursing</i> , 1(3), 172-175.	NO	NO	NO	NO
Canatsey, K., Bermudez, L.I., Roper, J.M. (1994). The homicidal patient: when a plan of care violates standards of care. <i>Journal of Psychosocial Nursing and Mental Health Services</i> , 32(11), 13-18-42-3.	NO	YES	YES	YES

Excluded studies	Design	Participant	Intervention	Outcome
Chiesa, M., Lacoconi, E., Morris, M. (1996). Changes in health service utilization by patients with severe personality disorders before and after inpatient psychosocial treatment. <i>British Journal of Psychotherapy</i> , 12(4), 501-512.	YES	YES	NO	YES
Childs, C.A., Oxley, P. (1997). A personal challenge: Principles of cognitive behavioural therapy for personality disorders. <i>Nursing Times</i> , 92(32), 52-53.	NO	YES	YES	NO
Chitty, KK., Maynard, CK. (1986). Managing manipulation. <i>Journal of Psychosocial Nursing and Mental Health Services</i> , 24(6), 8-13.	NO	NO	YES	NO
Cupitt, C. (1999). All for one. <i>Mental Health & Learning Disabilities Care</i> , 2(11), 385-388.	NO	YES	YES	NO
Donnelly, J.P., Scott, M.F. (1999). Evaluation of an offending behaviour programme with a mentally disordered offender population. <i>The British Journal of Forensic Practice</i> , 1(4), 25-32.	YES	NO	YES	YES
Fergusson, S., McComish, A., Paterson, B. (1997). Clinical outcome measures: psychopathy - a developmental framework. <i>Psychiatric Care</i> , 4(2), 71-74.	NO	YES	YES	YES
Flood, C. (1999). What are personality disorders and are they treatable? <i>British Journal of Nursing</i> , 8(4), 231-234.	NO	NO	NO	NO
Freeman, S.K. (1988). Inpatient management of a patient with borderline personality disorder: a case study. <i>Archives of Psychiatric Nursing</i> , 2(6), 360-365.	YES	YES	YES	NO
Gallop, R., Wynn, F. (1986). Difficult young adult chronic patients. Re-evaluating short-term clinical management. <i>Journal of Psychosocial Nursing and Mental Health Services</i> , 24(3), 29-32.	NO	NO	NO	NO
Gallop, R. (1992). Self-destructive and impulsive behavior in the patient with a borderline personality disorder: rethinking hospital treatment and management. <i>Archives of Psychiatric Nursing</i> , 6(3), 178-182.	NO	YES	YES	NO

Excluded studies	Design	Participant	Intervention	Outcome
Goren, S. (1987). The borderline patient: systemic versus psychoanalytic approach. Part II: The case of the compassionate canary: the systemic perspective. <i>Archives of Psychiatric Nursing</i> , 1(3), 176-179.	NO	NO	NO	NO
Greene, H., Ugarriza, D.N. (1995). The "stably unstable" borderline personality disorder: history, theory, and nursing intervention. <i>Journal of Psychosocial Nursing and Mental Health Services</i> , 33(12), 26-30.	NO	NO	NO	NO
Guy, S., Hume, A. (1998). A CBT strategy for offenders with personality disorders: part one. <i>Mental Health Practice</i> , 2(4), 12-16.	NO	YES	NO	NO
Guy, S., Hume, A. (1999). A CBT strategy for offenders with personality disorders: part two. <i>Mental Health Practice</i> , 2(5), 12-17.	NO	YES	YES	NO
Hampton, M. (1997). Dialectical behavior therapy in the treatment of persons with borderline personality disorder. <i>Archives of Psychiatric Nursing</i> , 11(2), 96-101.	NO	YES	YES	NO
Hardy, GE., Barkham, M., Shapiro, DA., Stiles, WB., Rees, A., Reynolds, S. (1995). Impact of Cluster C personality disorders on outcomes of contrasting brief psychotherapies for depression. <i>Journal of Consulting and Clinical Psychology</i> , 63(6), 997-1004.	YES	YES	NO	YES
Hoglund, P. (1993). Personality disorders and long-term outcome after brief dynamic psychotherapy. <i>Journal of Personality Disorders</i> , 7(2), 168-181.	YES	YES	NO	YES
Hollin, CR. (1999). Treatment programs for offenders: Meta-analysis, "What works," and beyond. <i>International Journal of Law and Psychiatry</i> , 22(3-4), 361-372.	NO	NO	NO	NO
Hughes, G., Tennant, A. (1996). A training and development strategy for clinically based staff working with people diagnosed as having psychopathic disorders. <i>Psychiatric Care</i> , 3(5), 194-199.	NO	YES	YES	NO

Excluded studies	Design	Participant	Intervention	Outcome
Johnson, M., Silver, S. (1988). Conflicts in the inpatient treatment of the borderline patient. <i>Archives of Psychiatric Nursing</i> , 2(5), 312-318.	NO	YES	YES	NO
Lego, S. (1987). The borderline patient: systemic versus psychoanalytic approach. <i>Archives of Psychiatric Nursing</i> , 1(3), 179-182.	NO	YES	NO	NO
Lewin, J., Beary, M., Toman, E., Skinner, G., Sproul-Bolton, R. (1994). A community service for sex offenders. <i>Journal of Forensic Psychiatry</i> , 5(2), 297-310.	NO	YES	NO	NO
Linehan, M.M., Schmidt, H., Dimeff, L.A., Craft, J.C., Kanter, J., Comtois, K.A. (1999). Dialectical behavior therapy for patients with borderline personality disorder and drug-dependence. <i>American Journal of Addictions</i> , 8(4), 279-292.	YES	YES	NO	YES
McEnany, G.W., Tescher, B.E. (1985). Contracting for care: one nursing approach to the hospitalized borderline patient. <i>Journal of Psychosocial Nursing and Mental Health Services</i> , 23(4), 11-18.	YES	YES	YES	NO
McMurrin, M., Thomas, G. (1991). An intervention for alcohol-related offending. <i>Senior Nurse</i> , 11(3), 33-36.	NO	NO	YES	YES
McMurrin, M. (1999). COV-AID: control of drinking – anger, impulsivity and drinking. <i>Dialogue</i> , 3, 4.	NO	YES	NO	NO
McMurrin, M., Richardson, C., Ahmadi, S. (1999). Social problem solving in mentally disordered offenders: a brief report. <i>Criminal Behaviour and Mental Health</i> , 9, 315-322.	YES	YES	NO	YES
Melia, P., Moran, T., Wilkie, I. (1999). Ashworth and after. <i>Mental Health Care</i> , 2(6), 205-207.	NO	YES	YES	NO
Melia, P., Moran, T., Mason, T. (1999). Triumvirate nursing for personality disordered patients: crossing the boundaries safely. <i>Journal of Psychiatric & Mental Health Nursing</i> , 6(1), 15-20.	NO	YES	YES	NO

Excluded studies	Design	Participant	Intervention	Outcome
Miller, C.R., Eisner, W., Allport, C. (1994). Creative coping: a cognitive-behavioral group for borderline personality disorder. <i>Archives of Psychiatric Nursing</i> , 8(4), 280-285.	NO	YES	YES	NO
Miller, F. (1991). Using Roy's model in a special hospital. <i>Nursing Standard</i> , 5(27), 29-32.	NO	YES	YES	NO
Miller, L.J. (1989). Inpatient management of borderline personality disorder: A review and update. <i>Journal of Personality Disorders</i> , 3(2), 122-134.	NO	YES	NO	NO
Moran, T., Mason, T. (1996). Revisiting the nursing management of the psychopath. <i>Journal of Psychiatric & Mental Health Nursing</i> , 3(3), 189-194.	NO	NO	YES	NO
Nehls, N. (1994). Brief hospital treatment plans for persons with borderline personality disorder: perspectives of inpatient psychiatric nurses and community mental health center clinicians. <i>Archives of Psychiatric Nursing</i> , 8(5), 303-311.	NO	YES	NO	NO
Neilson, P. (1991). Manipulative and splitting behaviours. <i>Nursing Standard</i> , 6(8), 32-35.	NO	NO	YES	NO
Noak, J. (1995). Care of people with psychopathic disorder. <i>Nursing Standard</i> , 9(34), 30-32.	NO	YES	YES	NO
O'Brien, L. (1998). Inpatient nursing care of patients with borderline personality disorder: a review of the literature. <i>Australian and New Zealand Journal of Mental Health Nursing</i> , 7(4), 172-183.	NO	YES	YES	YES
Pappas, D., Yannitsi, S., Liakos, A. (1997). Evaluation of in-patient groups in a general psychiatric unit. <i>Therapeutic Communities: International Journal for Therapeutic and Supportive Organizations</i> , 18(4), 285-296.	NO	NO	NO	NO
Perry, C.J., Banon, E., Ianni, F. (1999). Effectiveness of psychotherapy for personality disorders. <i>American Journal of Psychiatry</i> , 156(9), 1312-1321.	YES	YES	NO	YES
Piccinino, S. (1990). The nursing care challenge: borderline patients. <i>Journal of Psychosocial Nursing and Mental Health Services</i> , 28(4), 22-27.	NO	NO	NO	NO

Excluded studies	Design	Participant	Intervention	Outcome
Pollock, P., Belshaw, P. (1998). Cognitive analytic therapy. <i>Journal of Forensic Psychiatry</i> , 9(3), 629-642.	NO	YES	NO	NO
Pringle, P. (1998). A model of psychosocial care for severe personality disorder. <i>Nursing Times</i> , 94(20), 53-55.	NO	YES	YES	NO
Stafford, L.L. (1993). Dissociation & multiple personality disorder: a challenge for psychosocial nurses. <i>Journal of Psychosocial Nursing and Mental Health Services</i> , 31(1), 15-20.	NO	NO	YES	NO
Storey, L., Dale, C., Martin, E. (1997). Social therapy: a developing model of care for people with personality disorders. <i>NT Research</i> , 2(3), 210-219.	NO	NO	NO	NO
Storey, L., Dale, C. (1998). Meeting the needs of patients with severe personality disorders. <i>Mental Health Practice</i> , 1(5), 20-26.	NO	NO	NO	NO
Tennant, A., Hughes, G. (1997). Issues in nursing care for patients with severe personality disorders. <i>Mental Health Practice</i> , 1(1), 10-16.	YES	YES	YES	NO
Tennant, A., Davies, C., Tennant, I. (2000) Working with the personality disordered offender. In: Chaloner, C., Coffey, M. (eds.) <i>Forensic mental health nursing: current approaches</i> , pp. 94-117. Oxford: Blackwell Science.	NO	YES	NO	NO
Witherspoon, V. (1985). Using Lakovic's system. <i>Journal of Psychosocial Nursing and Mental Health Services</i> , 23(4), 30-34.	NO	NO	YES	NO

Annexe 6: Summary of outcomes measured in included studies

Standard outcome	Study outcome	Type of study
Change in service usage	The number and duration of inpatient admissions ¹	RCT
	Service utilisation ³	RCT
	Use of psychotropic medication ¹	RCT
	Use of psychotropic medication ⁶	Non-RCT
	The use of medical, surgical and psychiatric services ⁶	Non-RCT
	Visits to medical professionals ¹⁶	Before & After
	Hospital admission and duration of in-patient time ¹⁶	Before & After
Change in personality disorder status	Borderline status ⁷	Non-RCT
	DSM criteria for personality disorder ⁹	Non-RCT
	Big 5 personality factors of extraversion, agreeableness, emotional stability, conscientiousness, openness ¹⁰	Before & After
	Personality disorder ¹⁰	Before & After
	Number of DSM III criteria ¹⁶	Before & After
Change in symptoms	Level of depression ¹	RCT
	General symptoms of distress ¹	RCT
	Clinical symptom status ^{2,3}	RCT
	Level of anxiety ¹	RCT
	Psychiatric symptoms ⁵	RCT
	Symptomatic distress ⁷	Non-RCT
	Symptomatic distress ^{10, 11}	Before & After
	Psychiatric disturbance ¹⁰	Before & After
	Anxiety ¹²	Before & After
	Symptoms ¹⁶	Before & After
	Fear ¹⁸	Case Study
	Depression ¹⁸	Case Study
Change in social functioning and/or disability	Severity of disturbance ⁵	RCT
	Frequency of suicide attempts and acts of self-harm ¹	RCT
	Number of self-destructive acts ⁴	RCT
	Behavioural dysfunction ^{2,3}	RCT
	Defensive functioning ⁵	RCT
	Self-esteem ⁵	RCT
	Life satisfaction ⁵	RCT
	Interpersonal function ^{1,5}	RCT
	Social adjustment ¹	RCT
	Social performance ^{2,3}	RCT
	Self-harm behaviour ⁸	Non-RCT
	General level of functioning ⁷	Non-RCT
	Social adjustment ⁷	Non-RCT
	Employment ⁶	Non-RCT
	Self-esteem ¹⁰	Before & After
	Defensive style ¹⁰	Before & After
	Importance and severity of problems ¹⁰	Before & After
	Patient functioning ¹¹	Before & After
	General functioning ¹¹	Before & After
	Impulsiveness ¹²	Before & After
	Alternative thinking ¹²	Before & After
	Episodes of violence and self-harm ¹⁶	Before & After
	Emotional control ¹⁷	Before & After
Interpersonal functioning ¹⁰	Before & After	

Outcome grouping	Outcome measured	Type of study
Change in social functioning and/or disability (continued)	Social functioning ¹⁰	Before & After
	Time away from work ¹⁶	Before & After
	Perceived social support ¹⁰	Before & After
	Social adjustment ¹¹	Before & After
	Social comparison ¹²	Before & After
	Social problem solving ¹⁷	Before & After
	Interpersonal behaviour ¹⁹	Case Study
	Work and social adjustment ¹⁸	Case Study
	Parasuicide and suicide urges ¹⁹	Case Study
	Problems and targets ¹⁸	Case Study
	Number of outbursts of temper and/or aggression ²⁰	Case Study
Frequency and severity of behavioural disturbance ²⁰	Case Study	
Other	Quality of therapeutic relationship ³	RCT
	Therapeutic engagement ⁸	Non-RCT
	Cigarette and alcohol consumption ⁶	Non-RCT
	Ward atmosphere ¹²	Before & After
	Perception of group therapy process ¹⁴	Before & After
	Positive outcome association ¹⁴	Before & After
	Relationship between clients perception of helpful factors and successful outcomes ¹⁴	Before & After
	Counsellor verbal response ¹⁵	Before & After
	Masculine attitude ¹⁷	Before & After
	Group disclosure, participation and motivation, and contribution to group discussion ¹⁷	Before & After
	A battery of outcomes appropriate to the individual group completed ¹³	Before & After
	Reaction to the group experience and patients assessed benefit ¹⁰	Before & After
Drug use – illicit and prescribed ¹⁶	Before & After	

¹ Bateman & Fonagy (1999)

² Munroe-Blum & Marziali (1995)

³ Marziali *et al.* (1999)

⁴ O'Brien *et al.* (1985)

⁵ Piper *et al.* (1993)

⁶ Chiesa *et al.* (1996)

⁷ Chiesa & Fonagy (2000)

⁸ Cremin *et al.* (1995)

⁹ Meares *et al.* (1999)

¹⁰ Budman *et al.* (1996)

¹¹ Chiesa (2000)

¹² Donnelly & Guy (1998)

¹³ Hughes *et al.* (1997)

¹⁴ Nehls (1991)

¹⁵ Nehls (1992)

¹⁶ Stevenson & Meares (1992)

¹⁷ Tennant & Hughes (1998)

¹⁸ Rogers & Vidgen (1997)

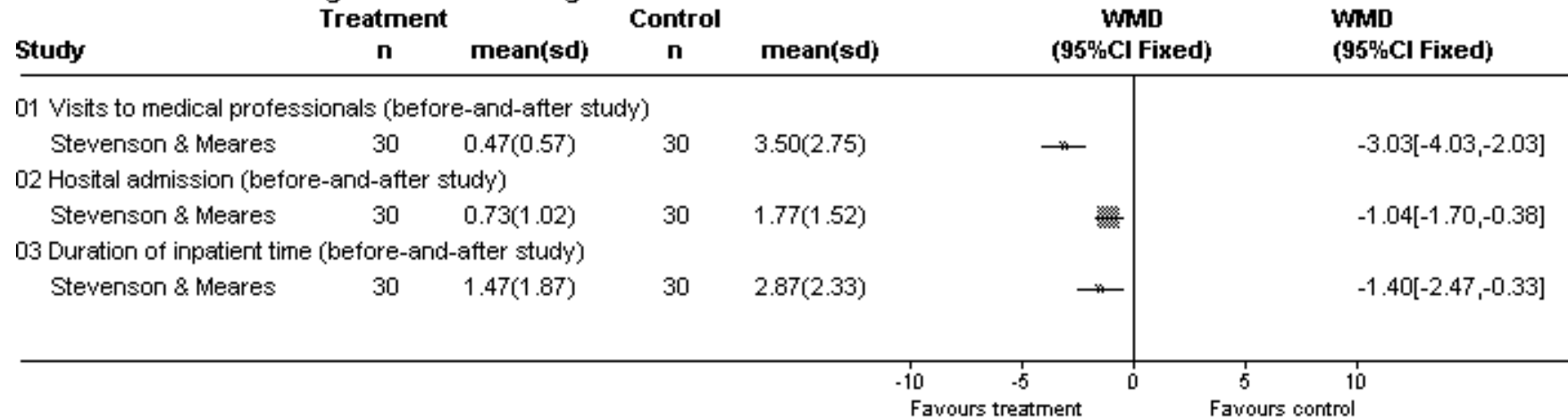
¹⁹ Shearin & Linehan (1992)

²⁰ Wandell & Prince (1991)

Annexe 7: Post-treatment forest plots

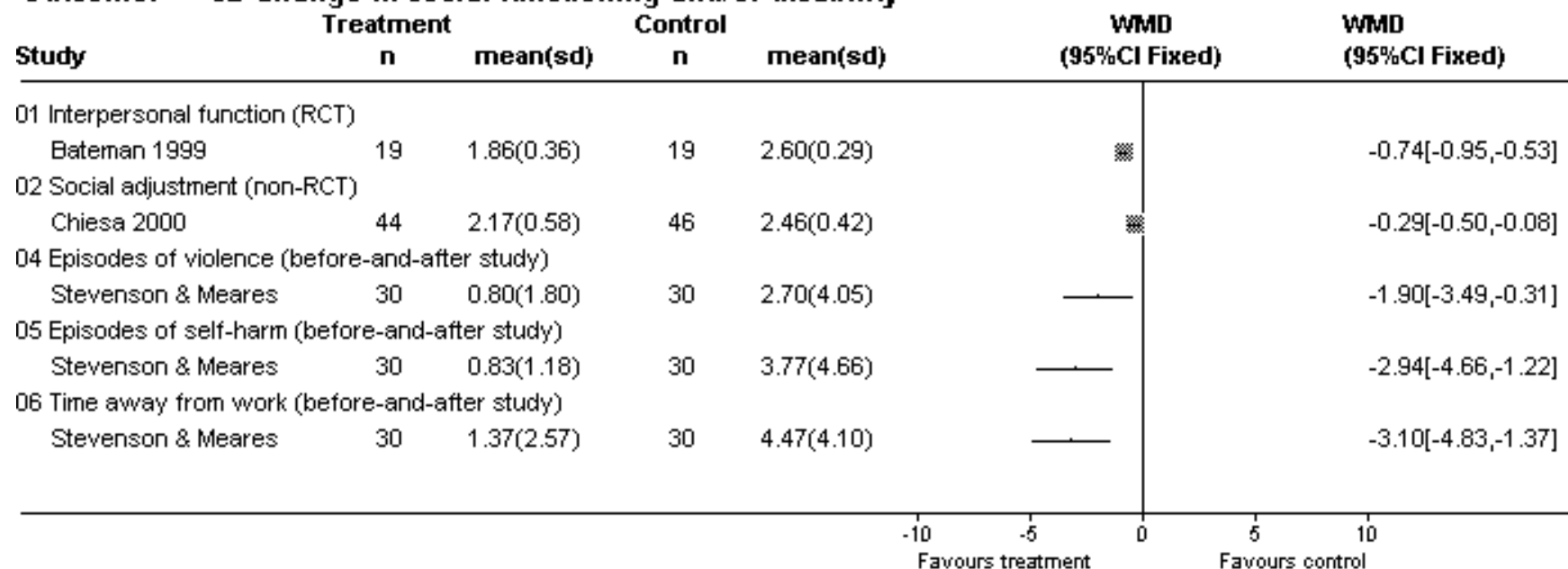
Comparison: 07 Mixed input

Outcome: 01 Change in service usage



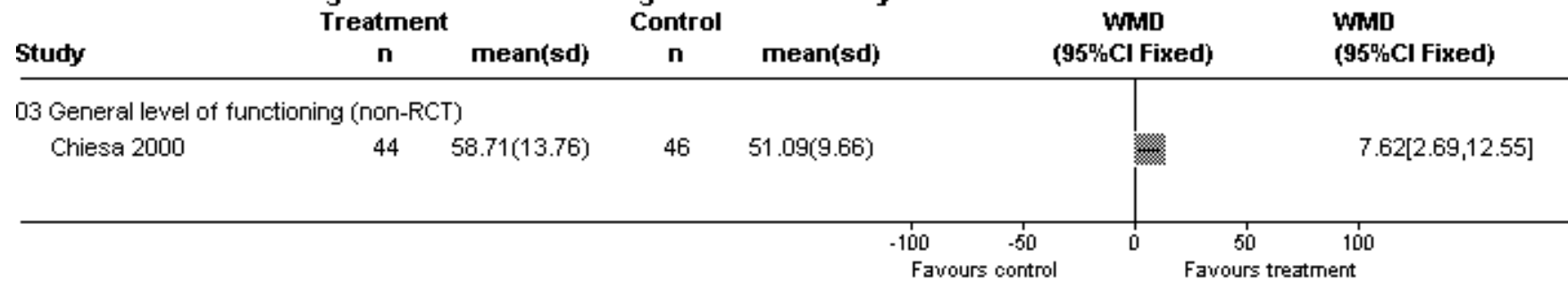
Comparison: 07 Mixed input

Outcome: 02 Change in social functioning and/or disability

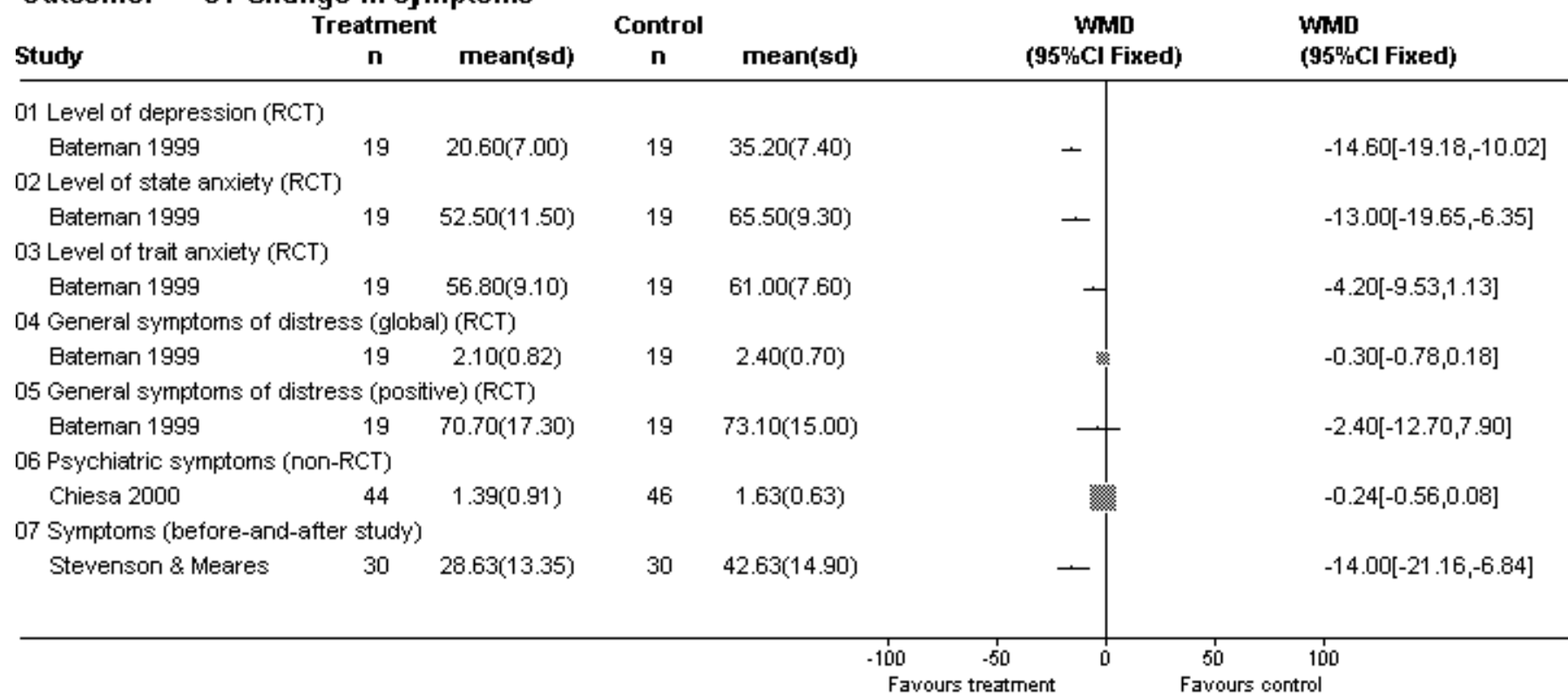


Comparison: 07 Mixed input

Outcome: 03 Change in social functioning and/or disability 1

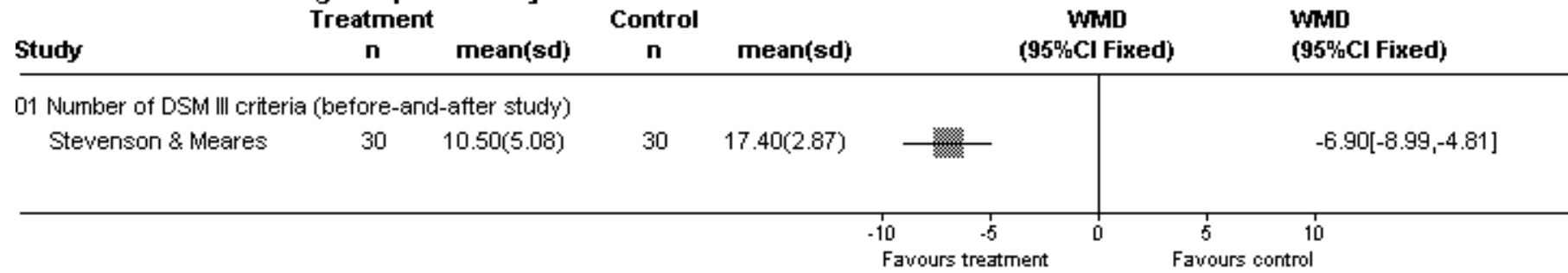


Comparison: 07 Mixed input
Outcome: 04 Change in symptoms



Comparison: 07 Mixed input

Outcome: 05 Change in personality disorder status



Comparison: 07 Mixed input

Outcome: 06 Other

