Art therapy for schizophrenia or schizophrenia-like illnesses (Review)

Ruddy R, Milnes D

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<table>
<thead>
<tr>
<th>TABLE OF CONTENTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HEADER</td>
<td>1</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>1</td>
</tr>
<tr>
<td>PLAIN LANGUAGE SUMMARY</td>
<td>2</td>
</tr>
<tr>
<td>BACKGROUND</td>
<td>2</td>
</tr>
<tr>
<td>OBJECTIVES</td>
<td>3</td>
</tr>
<tr>
<td>METHODS</td>
<td>3</td>
</tr>
<tr>
<td>RESULTS</td>
<td>6</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>10</td>
</tr>
<tr>
<td>AUTHORS’ CONCLUSIONS</td>
<td>11</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>12</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>12</td>
</tr>
<tr>
<td>CHARACTERISTICS OF STUDIES</td>
<td>14</td>
</tr>
<tr>
<td>DATA AND ANALYSES</td>
<td>19</td>
</tr>
<tr>
<td>Analysis 1.1. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 1 Leaving the study early - short term.</td>
<td>20</td>
</tr>
<tr>
<td>Analysis 1.2. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 2 Leaving the study early - medium term.</td>
<td>21</td>
</tr>
<tr>
<td>Analysis 1.3. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 3 Leaving the study early - long term.</td>
<td>22</td>
</tr>
<tr>
<td>Analysis 1.4. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 4 Mental state: 1a. Average score - short term (endpoint data, SANS, high = poor).</td>
<td>23</td>
</tr>
<tr>
<td>Analysis 1.5. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 5 Mental state: 1b. Average score - short term (endpoint skewed data, various scales, high = poor).</td>
<td>24</td>
</tr>
<tr>
<td>Analysis 1.5.1. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 5 Mental state: 1b. Average score - short term (endpoint skewed data, various scales, high = poor), Subgroup 1 BPRS.</td>
<td>24</td>
</tr>
<tr>
<td>Analysis 1.5.2. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 5 Mental state: 1b. Average score - short term (endpoint skewed data, various scales, high = poor), Subgroup 2 BSI.</td>
<td>25</td>
</tr>
<tr>
<td>Analysis 1.6. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 6 Social functioning: 1a. Average score - short term (endpoint data, SFS, high = poor).</td>
<td>25</td>
</tr>
<tr>
<td>Analysis 1.7. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 7 Social functioning: 1b. Average score - short term (endpoint data, SFS, high = poor).</td>
<td>26</td>
</tr>
<tr>
<td>Analysis 1.8. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 8 Quality of life: Average score - short term (endpoint data, PercQoL, high = good).</td>
<td>26</td>
</tr>
<tr>
<td>WHAT’S NEW</td>
<td>27</td>
</tr>
<tr>
<td>HISTORY</td>
<td>28</td>
</tr>
<tr>
<td>CONTRIBUTIONS OF AUTHORS</td>
<td>28</td>
</tr>
<tr>
<td>DECLARATIONS OF INTEREST</td>
<td>28</td>
</tr>
<tr>
<td>SOURCES OF SUPPORT</td>
<td>28</td>
</tr>
</tbody>
</table>
Art therapy for schizophrenia or schizophrenia-like illnesses

Rachel Ruddy1, David Milnes2

1Academic Unit of Psychiatry & Behavioural Sciences, University of Leeds, Leeds, UK. 2Acomb Medical Centre, York, UK

Contact address: Rachel Ruddy, Academic Unit of Psychiatry & Behavioural Sciences, University of Leeds, 15 Hyde Terrace, Leeds, LS2 9LT, UK. R.A.Ruddy@leeds.ac.uk. (Editorial group: Cochrane Schizophrenia Group.)

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Abstract

Background

Many people with schizophrenia or schizophrenia-like illnesses continue to experience symptoms in spite of medication. In addition to medication, creative therapies, such as art therapy, may be helpful. Art therapy allows exploration of the patient's inner world in a non-threatening way through a therapeutic relationship and the use of art materials. It was mainly developed in adult psychiatric inpatient units and was designed for use with people for whom verbal psychotherapy would be impossible.

Objectives

To review the effects of art therapy as an adjunctive treatment for schizophrenia compared with standard care and other psychosocial interventions.

Search strategy

We updated the search of the Cochrane Schizophrenia Group's Register (February 2005), hand searched reference lists and 'Inscape' (the Journal of the British Association of Art Therapists), and contacted relevant authors.

Selection criteria

We included all randomised controlled trials that compared art therapy with standard care or other psychosocial interventions for schizophrenia.

Data collection and analysis

We reliably selected, quality assessed and extracted data from the studies. We excluded data where more than 50% of participants in any group were lost to follow up. For continuous outcomes we calculated a weighted mean difference and its 95% confidence interval. For binary outcomes we calculated a fixed effects risk ratio (RR), its 95% confidence interval (CI) and a number needed to treat (NNT).

Main results

The search identified 61 reports but only two studies (total n=137) met the inclusion criteria. Both compared art therapy plus standard care with standard care alone. More people completed the therapy if allocated to the art therapy group compared with standard care in the short (n=90, 1 RCT, RR 0.97 CI 0.41 to 2.29), medium (n=47, 1 RCT, RR 0.34 CI 0.15 to 0.80) and long term (n=47, 1 RCT, RR 0.96 CI 0.57 to 1.60). Data from one mental state measure (SANS) showed a small but significant difference favouring the art-therapy group (n=73, 1 RCT, WMD -2.3 CI -4.10 to -0.5). In the short term, a measure of social functioning (SFS) showed no clear
difference between groups in endpoint scores (n=70, 1 RCT, WMD 7.20 CI -2.53 to 16.93) and quality of life, as measured by the PerQoL, did not indicate effects of art therapy (n=74, 1 RCT, WMD 0.1 CI -2.7 to 0.47).

Authors’ conclusions

Randomised studies are possible in this field. Further evaluation of the use of art therapy for serious mental illnesses is needed as its benefits or harms remain unclear.

PLAIN LANGUAGE SUMMARY

Art therapy for schizophrenia or schizophrenia-like illnesses

Most people with schizophrenia or schizophrenia-like illnesses will be treated with medication, although on average, 5-15% will continue to experience symptoms in spite of this. This review explores whether art therapy, one of a number of creative therapies, could be beneficial when used in addition to medication. The British Association of Art Therapists definition of Art Therapy is “the use of art materials for self-expression and reflection in the presence of a trained art therapist. Clients who are referred to art therapy need not have previous experience or skill in art, the art therapist is not primarily concerned with making an aesthetic or diagnostic assessment of the client’s image. The overall aim of its practitioners is to enable a client to effect change and growth on a personal level through the use of art materials in a safe and facilitating environment.” It has proved to be difficult to estimate how widely this intervention is available. However, there are descriptions of its use with people with schizophrenia, individually and in groups, in inpatient and outpatient settings as well as in the private sector.

Unfortunately we only found two randomised controlled trials that studied the use of art therapy for people with schizophrenia. Both studies did not include enough participants to make the results meaningful and we were unable to draw clear conclusions regarding the benefits or harms of art therapy from these studies. More research is needed to determine the value of art therapy in this population.

BACKGROUND

Schizophrenia is a mental illness and is described as a disorder with fundamental, characteristic distortions of thinking and perception, and inappropriate or blunted affect in clear consciousness (WHO 1992). The characteristic distortions of thinking and perception fundamentally relate to a sense of invasion of self. A person with schizophrenia may experience difficulties in distinguishing between self and non-self; this is called a loss of ego boundaries. One of the other distortions of thinking is called ‘concrete thinking’ and refers to literalness of expression and understanding. Another way of describing this is the absence of symbol formation (Sims 1995).

Medication is the mainstay of treatment for schizophrenia. However, 5-15% of people continue to experience symptoms in spite of medication and may also develop undesirable adverse effects (Johnstone 1998). Art therapy is one of the creative therapies that can be used in addition to medication for helping people with schizophrenia. Art therapy in Britain developed primarily within adult inpatient psychiatric units, it is therefore one of the only forms of therapy designed to cater for the needs of more disturbed people in the inpatient setting. Art therapy is also unique in the way that art materials are utilised to make a link with and engage severely disturbed people in psychodynamic therapy (Deco 1998).

Lyddiatt describes the use of art as a means of forging a link with the self that we know little about being “an age old means that is natural to man” (Thomson 1989). In the 1940s and 1950s, one theory of art therapy was that the art itself was a healing process or an occupation, and patients made images in large studio environments (Gilroy 1995). Another view originated from the work of Freud and viewed art as a method of accessing the unconscious, similar to dream interpretation. An important strand of thinking that has also influenced the theory and practice of art therapy is that embodied in the Withymead Centre, a therapeutic community founded in 1942 in the UK. This centre ran on Jungian principles. Art making formed the core of the treatment with the art therapist acting like a midwife, allowing the art ‘to be born’ (Edwards 2004). The current practice of art therapy uses theory from a variety of psychoanalytic schools. There are a number of different definitions of art therapy from different national organisations but the underlying fundamental principle is the same for all of them, basically that the process of art making should take place within a patient therapist relationship. The British Association of Art Therapists definition is “art therapy is the use of art materials for self-expression and reflection in the presence of a trained art therapist. Clients who are referred to art therapy need not have previous experience or skill in art, the art therapist is not primarily concerned with making an aesthetic or diagnostic assessment of the client’s image. The overall aim of its practitioners is to enable
a client to effect change and growth on a personal level through the use of art materials in a safe and facilitating environment." (Edwards 2004). Wood gives a detailed description of the history of the use of art therapy for schizophrenia in the book ‘Art, Psychotherapy and Psychosis’ (Wood 1997). Art therapy is considered to be more suitable for people with schizophrenia than some other forms of exploratory psychotherapy because the art work offers a buffer to reduce the intensity in the relationship between the therapist and patient. Through an image an individual can communicate ‘both the rational and the irrational and find an acceptance interpersonally that need not threaten the integrity of the maker’ (Sarra 1998). This can help to affirm a sense of self, which may be unclear in schizophrenia and which can be further threatened within an institutional setting (Sarra 1998).

It has proved difficult to estimate how widely available this intervention is. However there are descriptions of its use in people with schizophrenia, individually and in groups, in inpatient and outpatient settings and in the private sector. A current issue for art therapists is how to translate the work that used to be done with acutely psychotic patients in the supportive environment of a hospital with studio art spaces, to an outpatient setting with often less ideal art space, in line with the move away from hospital based treatment to care in the community (Wood 1997).

There has been a number of promising single case reports of using art therapy with schizophrenia (Waller 1992) but this review aims to look for higher quality evidence of its effects.

Technical background

There is ongoing discussion about whether the healing aspect of art therapy is the process of making art, the relationship that develops between the therapist and the patient, or most likely, a complex intervention of the two (Edwards 2004). One of the rationales for the use of art therapy in schizophrenia is that it addresses the problems with ego boundaries and symbol formation (described above). Killick identified three ‘fields of communication’ within the art therapy relationship that are important when working with people with schizophrenia (Killick 1995). These are the ‘intrapersonal’, the ‘intermediary’ and the ‘interpersonal’ communications. These fields of communication exist in relation to one another and exert continuous influence on one another. The ‘intrapersonal’ field is the potential for image making and is maintained for the patient by the therapist. Within this the patient develops a unique interaction with the art materials that can result in healing symbol formation (Killick 1995). Kandinsky describes symbol formation aptly in relation to colour in his book ‘Concerning the Spiritual in Art’; ‘light blue is like a flute, a darker blue a cello, and the darkest blue of all: an organ’ (Kandinsky 1955). The ‘intermediary’ field relates to ‘transitional’ phenomena described by Winnicott. This intermediary field creates scope for play where the patient can experiment with objects in symbolic activity and learn that they do not have concrete effects on themselves or the therapist. Finally, the ‘interpersonal’ field is the relationship between patient and therapist which includes the images. The folder, which contains the images or the absence of images, is important in keeping a link between patient and therapist (Killick 1995).

OBJECTIVES

To review the clinical effects of art therapy on people with schizophrenia or schizophrenia-like illnesses who are concurrently receiving standard care compared with no additional intervention to standard care or other additional psychosocial interventions to standard care.

METHODS

Criteria for considering studies for this review

Types of studies

We included all relevant randomised controlled trials. Where a trial was described as ‘double-blind’ but it was implied that the study was randomised we included these trials in a sensitivity analysis. If there was no substantive difference within primary outcomes (see types of outcome measures) when we added these ‘implied randomisation’ studies, then we included them in the final analysis. If there was a substantive difference we only used clearly randomised trials and described the results of the sensitivity analysis in the text. We excluded quasi-randomised studies, such as those allocating by alternate days of the week. We included group randomised studies.

Types of participants

We included trials where it was implied that the majority of people had a severe mental illness which was likely to be schizophrenia or a schizophrenia-like illness using any criteria. We did not exclude trials due to age, nationality or gender of participants. We included trials with participants with any length of illness who were being treated in any treatment setting.

Types of interventions

1. Art therapy (in groups or individually), for any length of time, as an adjunctive treatment for schizophrenia or schizophrenia-like illnesses, regardless of the other interventions being used (eg medication, hospitalisation, problem solving therapy, psycho-education, social skills training, cognitive-behavioural therapy, family therapy or psychodynamic psychotherapy). We used The British Association of Art Therapists definition of art therapy as a gold standard for inclusion. Their definition is as follows: “Art Therapy is the use of art materials for self-expression and reflection in the...
presence of a trained art therapist. Clients who are referred to art therapy need not have previous experience or skill in art, the art therapist is not primarily concerned with making an aesthetic or diagnostic assessment of the client’s image. The overall aim of its practitioners is to enable a client to effect change and growth on a personal level through the use of art materials in a safe and facilitating environment.” (Edwards 2004). We excluded art produced by none art therapists with patients for recreational, diagnostic or therapeutic purposes because it did not have the key factors needed to define it as art therapy according to the above definition.

2. Standard care
This is the care that a person would normally receive had they not been included in the research trial. This includes interventions such as medication, hospitalisation, community psychiatric nursing input and day hospital.

3. Other treatments
This includes any other treatment (biological, psychological or social) such as medication, problem solving therapy, psycho-education, social skills training, cognitive-behavioural therapy, family therapy or psychodynamic psychotherapy.

Types of outcome measures
1. Death - suicide and natural causes
2. Global state
  2.1 Relapse*
  2.2 Time to relapse
  2.3 No clinically important change in global state
  2.4 Average endpoint global state score
  2.5 Average change in global state scores
3. Service outcomes
  3.1 Hospitalisation
  3.2 Time to hospitalisation
4. Mental state
  4.1 No clinically important change in general mental state*
  4.2 Average endpoint general mental state score
  4.3 Average change in general mental state scores
  4.4 No clinically important change in specific symptoms
  4.5 Average endpoint specific symptom score
  4.6 Average change in specific symptom scores
5. Leaving the study early
  5.1 For specific reasons
  5.2 For general reasons
6. General functioning
  6.1 No clinically important change in general functioning
  6.2 Average endpoint general functioning score
  6.3 Average change in general functioning scores
  6.4 No clinically important change in specific aspects of functioning, such as social or life skills
  6.5 Average endpoint specific aspects of functioning, such as social or life skills
  6.6 Average change in specific aspects of functioning, such as social or life skills
7. Behaviour
  7.1 No clinically important change in general behaviour
  7.2 Average endpoint general behaviour score
  7.3 Average change in general behaviour scores
  7.4 No clinically important change in specific aspects of behaviour
  7.5 Average endpoint specific aspects of behaviour
  7.6 Average change in specific aspects of behaviour
8. Adverse effects
  8.1 No clinically important general adverse effects
  8.2 Average endpoint general adverse effect score
  8.3 Average change in general adverse effect scores
  8.4 No clinically important change in specific adverse effects
  8.5 Average endpoint specific adverse effects
  8.6 Average change in specific adverse effects
9. Engagement with services
  9.1 No clinically important engagement
  9.2 Average endpoint engagement score
  9.3 Average change in engagement scores
10. Satisfaction with treatment
  10.1 Recipient of care not satisfied with treatment
  10.2 Recipient of care average satisfaction score
  10.3 Recipient of care average change in satisfaction scores
  10.4 Carer not satisfied with treatment
  10.5 Carer average satisfaction score
  10.6 Carer average change in satisfaction scores
11. Quality of life
  11.1 No clinically important change in quality of life
  11.2 Average endpoint quality of life score
  11.3 Average change in quality of life scores
  11.4 No clinically important change in specific aspects of quality of life
  11.5 Average endpoint specific aspects of quality of life
  11.6 Average change in specific aspects of quality of life
12. Economic outcomes
  12.1 Direct costs
  12.2 Indirect costs
  * Primary outcomes of interest
All outcomes were reported for the short term (up to 12 weeks), medium term (13 to 26 weeks), and long term (more than 26 weeks).

Search methods for identification of studies
1. Electronic searches
We searched the Cochrane Schizophrenia Group’s Trials Register (February 2005) using the phrase: [({"art" | "painting"} | "milieu" | "drawing" | "creative" | "projective" | "craft" in title, abstract, index terms of REFERENCE) | (art | craft in interventions of STUDY)]
This register is compiled by systematic searches of major databases, hand searches and conference proceedings (see Group Module).
2. Reference searching
We inspected references of all identified studies, included or excluded, for more studies.

3. Hand searching
We manually searched ‘Inscape’, the journal of the British Association of Art Therapists, from 1996-2001 for relevant trials. Conference proceedings for The Association of Art Therapists conference 2002 and Vth Music Therapy Congress 2001 were also hand searched.

4. Personal contact
We contacted authors of relevant reviews or studies to enquire about other sources of relevant information.

Data collection and analysis

1. Selection of trials
We (RR and DM) independently selected suitable studies for inclusion in the review as detailed below. In cases of disagreement we obtained the article and independently assessed each article for relevance to the review and consulted a third reviewer where necessary. We resolved any arising disagreements by discussion and where there was still doubt, we added the study to those awaiting assessment and contacted the study authors for further clarification.

We assessed the titles and abstracts of identified studies to determine whether they met the inclusion criteria. In order to minimise bias, we printed a list of all titles and abstracts excluding the authors’ names, institutions, and journal title. In cases where the title and abstract contained sufficient information to determine that the article did not meet the inclusion criteria, these were excluded. We recorded all rejected papers and documented reasons for exclusion.

We retrieved the full papers of all remaining titles and abstracts deemed relevant. In addition, we reviewed all other potentially relevant articles identified by the various search strategies (reference checking, personal communications etc). All papers in languages other than English were translated/reviewed by someone who spoke the language (as far as possible). We independently reviewed all the articles and completed a form for each study and scored the quality of the research as described below. We documented the reasons for exclusion. Where the same study had more than one article detailing the outcomes, we treated all the articles as one study and presented the results only once.

2. Data extraction
We extracted all data from the selected trials, again, working independently of each other, and resolved any disputes by discussion. We placed trials on a list of those awaiting assessment. When it was not possible to extract data, or if further information was needed, we attempted to contact the relevant authors.

3. Assessment of quality
We assessed the quality of a particular trial in accordance with guidelines in the Cochrane Handbook (Jadad 1996). To prevent selection bias, someone not responsible for recruiting the participants, such as a central trial office or a person not involved in the trial conducted the randomisation. We noted the method of randomisation on the data extraction form. Allocation concealment was assessed as described in the Cochrane Reviewers Handbook (Alderson 2004):

(A) Adequate description of the allocation procedure
(B) Unclear description of the allocation procedure
(C) Inadequate description of the allocation procedure
(D) Allocation concealment was not used.

We accepted trials that were of category A and B and commented on any problems with allocation concealment in the text. In cases of disagreement, we sought clarification from the authors of the trial and added these to the list of those awaiting assessment. In addition, we were blinded to the authors’ names, institutions and journal title to prevent any bias.

4. Data analysis

4.1 Managing loss to follow up
The paper should give an adequate description of the loss of its participants in terms of the number of withdrawals, dropouts, and protocol deviations. We excluded data from studies where more than 50% of participants in any group were lost to follow up. In studies with less than 50% dropout rate, we considered people leaving early to have had the negative outcome, except for the event of death. We analysed the impact of including studies with high attrition rates (25-50%) in a sensitivity analysis. If inclusion of data from this latter group did result in a substantive change in the estimate of effect we did not add the data to trials with less attrition, but presented it separately.

We assessed outcomes using continuous (for example, changes on physical function scales), categorical (for example, one of three categories on a quality of life scale, such as ‘better’, ‘worse’ or ‘no change’), or dichotomous (for example, either returned to employment or did not return to employment) measures.

4.2 Dichotomous data
For dichotomous outcomes, we estimated a relative risk ratio with its associated 95% confidence intervals (CI). As a summary measure of effectiveness, where possible, we calculated the number needed to treat statistic (NNT).

4.3 Continuous data
Many rating scales are available to measure outcomes in psychosocial trials. These scales vary in the quality of their validation and reliability. Therefore, if a rating scale’s validation has not been published in a peer-reviewed journal, we excluded the data (Marshall 2000). In addition, it is preferable for the rating scale to be either a self-report or completed by an independent observer or relative and where this was not the case this was noted in the discussion. Where possible we used trials that had used the same instrument to measure specific outcomes in direct comparisons. Where continuous data were presented from different scales rating the same effect, we presented both sets of data and inspected the general direction of effect. We reported the mean and standard deviation.

Where standard deviations were not reported in the paper we attempted to obtain these from the authors or to calculate them us-

Art therapy for schizophrenia or schizophrenia-like illnesses (Review)
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ing others measures of variation such as the confidence intervals. For continuous data we calculated the weighted mean difference. 4.3.1 Skewed data: Often, continuous data on clinical and social outcomes do not follow a normal distribution. To avoid the pitfall of applying parametric tests to non-parametric data, the following standards were applied to all data before inclusion: (a) standard deviations and means were either reported in the paper or were obtained from the authors; (b) when a scale started from the finite number zero, the standard deviation, when multiplied by two, was less than the mean (otherwise the mean was unlikely to be an appropriate measure of the centre of the distribution, (Altman 1996)); (c) if a scale started from a positive value (such as PANSS which can have values from 30 to 210) the calculation described above in (b) was modified to take the scale starting point into account. In these cases skew is present if 2SD>(S-Smin), where S is the mean score and Smin is the minimum score. Endpoint scores on scales often have a finite start and endpoint and these rules can be applied to them. When continuous data are presented on a scale which includes a possibility of negative values (such as change on a scale), there is no way of telling whether data are non-normally distributed (skewed) or not. It is thus preferable to use scale endpoint data, which typically cannot have negative values. If endpoint data were not available, the reviewers used change data, but they were not subject to a meta-analysis, and were reported in the 'Additional data' table.

4.3.2 Endpoint versus change data Where possible we presented endpoint data and if both endpoint and change data were available for the same outcomes then we only reported the former.

4.4 Cluster trials Studies increasingly employ 'cluster randomisation' (such as randomisation by clinician or practice) but analysis and pooling of clustered data poses problems. Firstly, authors often fail to account for intra-class correlation in clustered studies, leading to a 'unit of analysis' error (Divine 1992) whereby p values are spuriously low, confidence intervals unduly narrow and statistical significance overestimated. This causes type I errors (Bland 1997, Gulliford 1999).

Where clustering was not accounted for in primary studies, we presented the data in a table, with a (?) symbol to indicate the presence of a probable unit of analysis error. In subsequent versions of this review we will seek to contact first authors of studies to obtain intra-class correlation co-efficients of their clustered data and to adjust for this using accepted methods (Gulliford 1999). Where clustering has been incorporated into the analysis of primary studies, we will also present these data as if from a non-cluster randomised study, but adjusted for the clustering effect. We have sought statistical advice and have been advised that the binary data as presented in a report should be divided by a 'design effect'. This is calculated using the mean number of participants per cluster (m) and the intra-class correlation coefficient (ICC) design effect = 1+(m-1)*ICC (Donner 2002). If the ICC was not reported it was assumed to be 0.1 (Ukoumunne 1999).

If cluster studies had been appropriately analysed taking into account intra-class correlation coefficients and relevant data documented in the report, synthesis with other studies would have been possible using the generic inverse variance technique.

5. Sensitivity analyses Where data permitted, we were to have undertaken a sensitivity analysis in order to see if sub-grouping the data resulted in important changes in the results. The results of the subgroup analysis was to have been compared with the overall result to see if there was any important difference and the differences then discussed in the results section. We pre-specified five such sub-groupings, recognising that data may be too sparse to undertake all of them.

* group vs individual therapy
* differences between studies that give self-reported or observer-rated outcomes
* differences between studies with more than 50% attrition rate and those with less than 50% attrition rate
* differences between studies using intention to treat analyses and those not using intention to treat analyses
* differences between cluster randomised trials and non cluster randomised trials

6. Testing for heterogeneity

Firstly, we considered all the included studies within any comparison to estimate clinical heterogeneity. Then we undertook visual inspection of the graphs to investigate the possibility of statistical heterogeneity. This was supplemented employing, primarily, the I-squared statistic. This provides an estimate of the percentage of inconsistency thought to be due to chance. Where the I-squared estimate was greater than or equal to 75%, this was interpreted as indicating the presence of high levels of heterogeneity (Higgins 2003). If inconsistency was high, we did not summate data, but presented it separately and investigated reasons for heterogeneity. We then re-analysed data using a random effects model to see if this made a substantial difference. If it did, and results became more consistent, falling below 75% in the estimate, we added the studies to the main body of trials. If using the random effects model did not make a difference and inconsistency remained high, we did not summate data, but presented it separately and investigated reasons for heterogeneity.

7. Addressing publication bias

We entered data from all included studies into a funnel graph (trial effect against trial size) in an attempt to investigate the likelihood of overt publication bias (Davey Smith 1997).

8. General

Where possible, we entered data in such a way that the area to the left of the line of no effect indicated a favourable outcome for the psychosocial intervention.
**Description of studies**

See: Characteristics of included studies; Characteristics of excluded studies.

This review is a rewrite and update of the version published in 2003 (Ruddy 2003). However, we did not find any new studies but did manage to obtain all the results from Richardson 2002 which are rewritten below.

Please see Excluded and Included Trials table.

1. Excluded studies

We excluded 17 studies. One did not have a control group (Korlin 2000), one was not randomised (Diaz Martinez 1996) and in three, allocation was unclear (Matthews 1979, Paul 1977, Grodner 1982). In Odell-Miller 2001, allocation to treatment group and control group was randomised. However, the treatment group was then assessed and allocated, not randomly, to an individualised package of care (some of which contained art therapy). Only the minority of participants (7/45) in Grodner 1982 had schizophrenia or schizophrenia-like illnesses and results were not presented by diagnosis. Most studies were excluded because art therapy was not the intervention under investigation (DeCarlo 1985, Dincin 1982, Dobson 1995, Durell 1968, Karon 1972, Kremer 1984, Matthews 1979, Munjiza 1999, Paul 1977, Yu 2002). Some of the trials involved a package of care; one element of which was art therapy. These three trials had to be excluded because it was impossible to determine the effect of the art therapy alone (Gauthier 1972, Liberman 1981, Lukoff 1986).

2. Awaiting assessment

Krajewski 1993 compared art therapy with cognitive behavioural therapy and a combination of art therapy and cognitive behavioural therapy in people with schizophrenia. We were only able to obtain the abstract for this study and this did not contain any usable data, so we classified this trial as still awaiting assessment. Bowman 2000 is a poster describing a conference presentation on art therapy for psychosis. We do not know whether this is a report of a trial and to date have been unsuccessful in ascertaining further information about this, so we have classified it as still awaiting assessment.

3. Ongoing studies

We know of no ongoing studies.

4. Included trials

Two studies met the inclusion criteria (Green 1987, Richardson 2002).

4.1 Objectives

Green 1987 looked at “Group art therapy as an adjunct to treatment for chronic outpatients”. The aim of this study was to show that a “time-limited experience with art therapy in a group setting could help patients enhance their self-esteem and promote positive interaction with others”. Richardson 2002 also investigated group art therapy and conducted “a randomised trial of group based art therapy as an adjunctive treatment in severe mental illness”. The aim of Richardson 2002 was to “conduct a controlled evaluation of the effects of art therapy on the quality and clinical outcome of mental health service users with severe mental illness”.

4.2 Methods

Green 1987 simply stated that the study was randomised. Richardson 2002, however, stated that the study participants were randomly allocated by a computer programme using the minimisation method, with groups balanced for Care Programme Approach level (this is broadly a measure of risk, severity of mental illness and service involvement received, with standard level being the lowest), length of illness, gender and ethnicity. Both studies were single blind with the assessors not knowing whether the participants were receiving art therapy or treatment as usual. Richardson 2002 commented that the participants may have informed the assessors which treatment group they were in, so the assessors may not have been truly blind. Richardson 2002 also specified that the study was designed to conform to the CONSORT2 standards for the conduct of randomised controlled trials (Moher 2001).

4.3 Length

Green 1987 involved 20 weeks of interventions with follow up at nine months. Participants in Richardson 2002 had 12 weeks of intervention with follow up at six months.

4.4 Setting

Green 1987 was conducted at Central Psychiatric Clinic, a community based aftercare service clinic for people with long term mental illnesses in Cincinnati, Ohio, USA between April and October 1980. Richardson 2002 was conducted within the Lewisham and Guys Mental Health NHS Trust, London, UK, between June 1997 and May 1999. This could have led to differences between the studies because within the profession, the nature of art therapy practice on either side of the Atlantic is significantly different due to the different contexts of practice, training, education and the primary disciplines of art therapists (Edwards 2004).

4.5 Participants

Half the 47 participants in Green 1987 had a diagnosis of schizophrenia, 21% had a major affective disorder or psychotic disorder and 18% had a neurotic disorder and may have had an associated personality disorder (30 women, 17 men). These people were on average about 40 years old. They had been involved with the service for several years and had on average been admitted to hospital three times. Most were single, 29% were divorced or separated, 11% married and 7% widowed. Of the 452 people who were identified to take part in Richardson 2002, 101(22%) failed to attend two appointments to discuss the trial and 206 (46%) refused to participate. The 90 people who did enter the study were mental health service users who were currently in active contact with Community Mental Health Teams (CMHTs) in South East London. All CMHTs were invited to refer patients with a diagnosis of chronic schizophrenia for at least two years duration. Exclusion criteria were organic illness, referral to art therapy services in the previous two years, currently receiving another formal psychological treatment or current admission to inpatient care. Of the 90 participants 59 were male and 31 were female.
The participants were broadly similar in the two studies. Both studies involved people of similar age and most participants had been in contact with services for a fairly long time (mean 13 years in Richardson 2002 and average three admissions in Green 1987). The difference was that in Green 1987 participants had a range of diagnoses, whereas in Richardson 2002 people only had psychosis. We felt it was reasonable to combine the results of these two studies as the people involved are likely to reflect those seen in most art therapy groups.

4.6 Interventions
4.6.1 Art therapy

In Green 1987, this was conducted in two groups of 12 patients over ten sessions. The sessions lasted 90 minutes and were held fortnightly. The same art therapist led both groups and the sessions were divided into several sections. They began with a “short introduction and socialisation period”. This was followed by a directed relaxation lesson where participants were encouraged by “carefully sequenced imagery to visualise scenes and activities in their mind’s eye”. Following this they were given art materials to work on the session project. In the final part of the session, participants discussed their art work as a group “if their psychological states permitted”. Selected art works from each patient were subsequently displayed in the art therapy room. The sessions aimed to develop self-expression, promote group cohesion, increase tolerance of disclosing emotionally significant material and encourage group interaction, support and positive feedback. All participants also received treatment as usual, but it should be noted that the art therapy group received an intervention that involved them in services for an extra 15 hours compared with the control group.

In Richardson 2002 the art therapy was conducted in groups of four or five participants. Groups continued to function as long as three members remained but if they became smaller than three the members were transferred to other parallel groups. The therapy involved 12 weekly sessions lasting 90 minutes. The authors state that it was conducted according to published guidelines (Waller 1993). The theory behind these guidelines is that through using art materials and associated imagery the therapist promotes an environment which allows the service user to “learn about and understand the patterns of behaviour that are causing distress”. The participants receiving art therapy also received standard care from the CMHT and therefore had 18 hours more intervention than the control group during the study. The art therapy intervention that fits within the definition we used for this review so we have decided to combine the study results where possible.

4.6.2 Standard care (treatment as usual)

Green 1987 stated that treatment as usual consisted of individual verbal therapy from a member of the community team every two to four weeks for about 20 minutes, a team psychiatrist review for 10-15 minutes once a month and psychotropic medication. Richardson 2002’s treatment as usual group received standard psychiatric care that involved regular contact with the CMHT (frequency determined by care program approach (CPA) level), regular medication review and CPA review meetings. Patients also had access to a variety of day treatment facilities according to their location. The amount of input therefore differed across people. The treatment as usual interventions in both groups were sufficiently similar. Both studies used groups for administering the art therapy but in neither study did the control intervention involve group work. It is possible that any beneficial effect of the art therapy may be due to group factors rather than the treatment itself.

4.7 Outcomes

The only usable data for Green 1987 was for the outcome of leaving the study early by 20 weeks and by nine months (which was available in another publication (Borchers 1985)). We have not been successful in our attempts to contact the author for further clarification. The data for leaving the study early by the end of therapy and by six month follow up were available for Richardson 2002. For some reason different numbers of participants completed the assessments at the end of therapy and the average number of participants completing all assessments has been used as the number remaining in the study at this stage.

Green 1987 used outcome-rating scales, but unfortunately no means or standard deviations were reported. ANOVA calculations and significance levels for the statistically significant results were also too inaccurate to use. The satisfaction questionnaire that was used in the study was not a standardised tool and was only administered to people receiving art therapy, therefore these results are impossible to use.

Richardson 2002 used seven rating scales (Brief Psychiatric Rating Scale, Brief Symptom Inventory, Health of the Nation Outcome Scale, Inventory of Interpersonal Problems 32, Lancashire Quality of Life Profile, Social Functioning Scale and the Scale for Assessment of Negative Symptoms). We could not include data from one of these scales. The Health of the Nation Outcome Scale is not considered suitable for use in clinical trials (Wing 1994). Data from the BPRS (Overall 1962), BSI (Derogatis 1983) and the IIP32 (Barkham 1996) were skewed and are only presented in other data tables. The author kindly provided unpublished data for all the scales that has allowed us to use the results in this review. Although both long term and short term data were presented, only short term data from these scales were usable in this review because over 50% of the participants withdrew before their six month follow up. Such high attrition data were considered to be too prone to bias to present (see Methods 4.1).

4.7.1 Outcome rating scales included in this review
4.7.1.1 Scale for the Assessment of Negative Symptoms (SANS, Andreasen 1989)
SANS is a six-point scale that gives a global rating of the following negative symptoms: alogia, affective blunting, avolition-apathy, anhedonia-asociality, and attentional impairment. Higher scores indicate more symptoms.

4.7.1.2 Social Functioning Scale (SFS, Birchwood 1990)
The SFS assesses areas of functions that are crucial for the community maintenance of individuals with schizophrenia. The seven areas are social engagement/withdrawal, interpersonal behaviour, pro-social activities, recreation, independence-competence, independence-performance and employment/occupation. A low score is poor.

4.7.1.3 Lancashire Quality of Life Profile (Perc QoL, Oliver 1996)
Perc QoL is a scale that measures quality of life in each of nine domains (work, leisure, religion, finance, living situation, legal and safety, family relations, social relations, health) and also contains three general sub-scales for global well-being, affect balance and self-concept. A higher score indicates a better quality of life.

4.7.1.4 Brief Psychiatric Rating Scale (BPRS, Overall 1962)
This scale consists of 24 psychiatric symptom constructs. Each one is rated on a seven point scale of severity ranging from ‘not present’ (1) to ‘extremely severe’ (7). A higher score therefore indicates more psychiatric symptoms.

4.7.1.5 Brief Symptom Inventory (BSI, Derogatis 1983)
This is a 53-item symptom checklist developed as a shortened form of the SCL-90-R (Derogatis, 1983). Scoring is on a 5-point scale leading to nine independent symptomatic profiles: somatisation, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychotism. In addition, it yields two general measures of symptomatic distress: the Global Severity Index (GSI) and the Positive Symptom Total (PST). The higher the score, the greater the number of symptoms.

4.7.1.6 Inventory of Interpersonal Problems 32 (IIP 32, Barkham 1996)
The IIP 32 has eight subscales that measure interpersonal problems (hard to be supportive, hard to be assertive, hard to be involved, hard to be sociable, too dependent, too aggressive, too caring, and too open). Each subscale has four items and they are rated 0-4 according to the severity of the problem with a higher score indicating more problems.

Risk of bias in included studies

1. Randomisation
Green 1987 stated that people were randomised to the two interventions, but did not make it explicit how this was undertaken. Readers of this report are not reassured that allocation was truly concealed. In Richardson 2002 the randomisation was achieved using a computer programme employing the minimisation method. The groups were balanced for various factors as described above. Again, however, it is not clear if allocation was concealed.

2. Blindness
Green 1987 stated that the members of the community team rating outcomes were blind to the study aims and the group to which people had been allocated. The authors pointed out, however, that participants may have told assessors which therapy they were receiving. Richardson 2002 felt that since the research assistant had to interview the participants to complete the assessments, they were unlikely to remain blind to group allocation.

3. Descriptions of people who withdrew before completion
Green 1987 states that there was no difference between those leaving the study on initial levels of functioning and demographic characteristics and those completing the trial, but exactly why people left remains unclear. For Richardson 2002 the number of people leaving after randomisation is reported at the end of the study and at the six month follow up, however there is no description of why they left the study early. Unfortunately because more than 50% of the participants withdrew before the follow up at six months, we have had to exclude the results for six month follow up as they are likely to be significantly affected by this large attrition rate and therefore unreliable.

4. Overall impression
Currently reports of both studies do not provide reassurance that allocation was fully concealed, therefore both studies are categorised as ‘B’. Green 1987 is single blind, but this is likely to have been compromised and the reasons for people leaving early are not reported. Richardson 2002 is also single blind, but as the authors have pointed out, this is likely to be compromised by the interview assessments. Richardson 2002 included a power calculation that estimated that it was necessary to have 64 people in each group to show significant differences between groups on the main outcome variables but unfortunately they did not achieve this figure. Richardson 2002 has not yet been fully published and we are grateful to the authors for the information that we have been able to include.

Effects of interventions

1. Search
The search identified 62 references, 41 of which were clearly not relevant to this review. Of the remaining 21 reports, we were able to include two trials but more information is needed before we can use all of the results (Green 1987, Richardson 2002) and one abstract reported no usable data (Krajewski 1993) and awaits assessment. Attempts are still being made to obtain data from these studies. This review contains data from only Green 1987 and Richardson 2002 (total n=137).

2. COMPARISON: ART THERAPY + STANDARD CARE versus STANDARD CARE
2.1 Leaving the study early
2.1.1. Leaving the study early - short term
Richardson 2002 provided short-term data. More people completed the therapy if allocated to the art therapy group than standard care but this was not a significant difference. (n=90, 1 RCT, RR 0.97 CI 0.41 to 2.29)
2.1.2. Leaving the study early: medium-term

Both studies presented medium-term data. Nineteen of the 47 participants (40%) left Green 1987 before the completion of 20 weeks of therapy and in this study significantly more people in the standard care group left the study early (n=47, 1 RCT, RR 0.34 CI 0.15 to 0.80, NNT 3 CI 2-9). Richardson 2002 again had different numbers of people completing the scales at six months. In this study more people dropped out of the art therapy group (25 of 43) than those in the standard care group (25 out of 47) but this difference was not significant (n=90, 1 RCT, RR 1.09 CI 0.76 to 1.58). Combining was not undertaken as this resulted in the introduction of significant heterogeneity (I-square 85%).

2.1.3. Leaving the study early: long-term

The nine month follow up data for Green 1987 is reported in Borchers 1985. No significant difference in loss was found between groups (n=47, 1 RCT, RR 0.96 CI 0.57 to 1.60).

2.2 Mental state

Only one study (Richardson 2002) reported data for mental state. The study used three different assessment scales but data from two of these (BPRS and BSI) were skewed and can only be used in 'other data tables'. Data from the SANS scale, however, were normally distributed and showed a significant difference favouring the art-therapy group although the average mean scores seemed to be very low for this scale (n=73, WMD -2.3 CI -4.10 to -0.5).

2.3 Social functioning

Richardson 2002 used the SFS scale to measure social functioning. Short-term data showed no significant difference between groups in endpoint scores for social functioning (n=70, WMD 7.20 CI -2.53 to 16.93). Richardson 2002 also used the IIP but data from this scale are skewed and included in 'other data tables'.

2.4 Quality of life

Again Richardson 2002 was the only study to present usable data. Short-term data from the Perc QoL found no significant differences in endpoint scores (n=74, WMD 0.1 CI -2.7 to 0.47).

**DISCUSSION**

1. Strengths and weakness of the review

This review represents an all too rare attempt at quantifying the effects of a treatment approach for people with schizophrenia that is advocated by art therapists (Killick 1995, Gilroy 1995, Wood 1997). Great efforts have been made to identify randomised studies in order to measure the value of this specialised treatment as objectively as possible. Green 1987, Richardson 2002, and perhaps Krajewski 1993 recognise the need for this and prove that randomisation is possible; this review brings their work to the fore and highlights important lessons for future trialists.

Only two of these studies could be included in the review and poor reporting of data led to further loss of information. Both studies are small and likely to be too underpowered to find a clinically meaningful effect. Understandably, scales have been used in these hypothesis-generating trials. Significant shifts in scales could suggest clinical meaning that could be tested in a fully powered study.

2. Applicability

Only Richardson 2002 provided data on the number of people originally identified as eligible for the study and the number actually entering the trial. It appears that up to 68% of potential participants refused the possibility of art therapy. This may suggest that the idea of art therapy as a treatment is not appealing to people with schizophrenia or schizophrenia-like illnesses, although it is not clear whether the 22% of the total who failed to attend appointments were aware that they were being considered for an art therapy study. Only 49 people were excluded by the trialists for not meeting the inclusion criteria which means that the remainder made their own decisions not to be involved. It is possible that those participants who did become involved in the study are not representative of people with schizophrenia who are seen in everyday practice.

3. COMPARISON: ART THERAPY + STANDARD CARE versus STANDARD CARE

3.1 Leaving the study early

Green 1987 and Richardson 2002 have differing results. Forty percent left Green 1987 before the end of therapy compared with 19% in Richardson 2002. Green 1987 included people with several other diagnoses other than schizophrenia (50% major affective disorder, neurotic disorder, personality disorder) whereas Richardson 2002 included only people with chronic schizophrenia. This alone could well account for the heterogeneity. Richardson 2002 found that with a 12 week art therapy intervention there was no significant difference between groups for leaving the study early. Overall, the differences between groups were not significant. There were no reasons given as to why people left the study early. However, Green 1987, with a 20 week art therapy intervention, suggests that it was three times more likely that people in the control group would leave the study before the end of therapy than those allocated art therapy. Everyone received treatment as usual, but people in the art therapy group clearly received an intervention which involved group work and an extra 15 hours of therapy. Any difference in results may be due to extra contact, or group cohesiveness, rather than the art therapy per se. We also do not know why people left early. It could be that people stay in a study because they feel satisfied with care and that their hope and self-esteem is improved. Alternatively those who leave early may have recovered and might be eager to leave behind the role which their illness defines for them. It is difficult to know why there is such a difference between the two studies. We have described above how Green 1987 included a component of relaxation into their art therapy sessions that Richardson 2002 did not, so any difference may reflect differing interventions. It is also possible that a 20 week intervention may be more effective at keeping people engaged than a 12 week intervention. At present the results are inconclusive and it
is impossible to say with certainty what effect art therapy has on keeping people involved with services during the therapy.

Both studies found that engagement with the study after the therapy had finished was poor. Sixty six percent left Richardson 2002 before six month follow up, thus rendering the six month follow up data for other outcomes unusable by this review and that 65% had left Green 1987 before nine month follow up. Both studies found no significant difference between groups in terms of dropouts after therapy had ended.

3.2 Mental state

One study, Richardson 2002 (n=90), presented data from three mental state scales (BPRS, BSI and SANS) but only one of these, the SANS, had normally distributed data. Results suggested a beneficial effect on mental state in the short-term for those receiving art therapy (n=73, WMD -2.3 CI -4.10 to -0.5) However, this result should be treated with caution for several reasons. Firstly it is based on one small study. Secondly the data is not intention-to-treat (n=73) and the clinical significance of the difference between the groups is debatable. This is because there is a similar significant difference between the groups at baseline, so it is unclear if the difference is purely due to the therapy. Finally it should be noted that the results are only presented for the short-term as more than 50% of participants dropped out before the six month follow up, and as such, the longer term effects of art therapy on mental state are not presented. Skewed data from the BPRS and BSI showed no clear differences in mental state between groups.

3.3 Social functioning

Again only Richardson 2002 presented usable data for social functioning. Data from the SFS suggests there is no significant difference in social functioning in the short term. As above, this result is not robust, it is based on one small study and data is not intention-to-treat (n=70). Long-term effects of art therapy on social functioning were also lost due to high attrition with over 50% of participants leaving before the six month follow up. IIP data also suggested no difference between groups in short-term social functioning but data from this scale were skewed.

3.4 Quality of life

Richardson 2002 (n=90) found no significant difference in quality of life for the short-term when measured by Perc QoL. Again it is difficult to draw any firm conclusions from such data as the numbers involved are small and data is not intention-to-treat (n=74). The results also seem to be very static over time and it is unclear whether the authors have again reduced the rating scale score to a different scale. Again in this study, long-term effects were not available due to more than 50% of participants leaving the study early.

Implications for practice

1. For people with schizophrenia

If offered art therapy, a person with schizophrenia should made aware that its use is under evaluation and its benefits or harms are, as yet, unclear. The person offered this intervention could suggest that they would comply only in the context of inclusion in real world, evaluative research.

2. For clinicians

If art therapy is available for people with schizophrenia its use can only be viewed as experimental as it is currently not known whether this approach helps or harms. Although the previous version of this review suggested that there was some evidence to support that art therapy may be of more value than standard care for keeping people engaged with services, this seems dubious now the results of Richardson 2002 have been added. It is unclear whether art therapy may improve mental state, social functioning, interpersonal relationships or quality of life and there are no data available for outcomes such as satisfaction with care.

3. For policy makers

There is no evidence to support the use of art therapy as part of policy.

4. For funders

Funders with an interest in the projective therapies should support further adequately powered and designed studies of art therapy for schizophrenia.

Implications for research

1. General

If the CONSORT recommendations (Moher 2001) were followed in reporting future studies, we would be more aware of the effects of art therapy. Much important data from one of the included studies was lost due to poor reporting.

2. Specific

As art therapy is used for people with schizophrenia, large simple, well-designed and reported trials comparing it to standard care without art therapy are justified to establish whether it has a role in the treatment of schizophrenia or schizophrenia-like illnesses.

Researchers may wish to involve more comparable interventions. Some way of compensating for the additional time spent with people and the group cohesiveness generated by allocation to art therapy may be seen as desirable. A variety of clinically meaningful outcomes are important in future art therapy studies. For example, clinically significant changes in global functioning, mental state and behaviour, relapse, admission to hospital, engagement with services, quality of life, leaving the study early, satisfaction with care, adverse effects, death and economic outcomes (cost-effectiveness and cost-benefit).

AUTHORS’ CONCLUSIONS
ACKNOWLEDGEMENTS

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* Indicates the major publication for the study

CHR ARACTERISTICS OF STUDIES

Characteristics of included studies  [ordered by study ID]

Green 1987

| Methods | Allocation: randomised.  
| | Blindness: raters blind to treatment group, unaware of study hypothesis.  
| | Duration: 20 weeks (end of therapy).  

| Participants | Diagnosis: schizophrenia (50%), major affective disorder or psychotic disorder (21%), neurotic disorder +/- personality disorder (18%).  
| | N=47.  
| | Age: mean ~ 40 years.  
| | Sex: 17M, 30F  
| | History: 23 single, 14 divorced or separated, 5 married, 3 widowed, attended psychiatric clinic for several
Green 1987  (Continued)

years, seen > once a month, mean 3 admissions.
Setting: Cincinnati, USA.

Interventions
1. Art therapy + standard care: therapy for 1.5 every 2 weeks for 10 sessions, 2 groups of 12 people, same art therapist for both groups. N=24.

Outcomes
Leaving the study early.
 Unable to use -
Psychosocial functioning: Progress Evaluation Scales (no means, SDs, or Ns by group).
Self esteem: Rosenberg's Self Esteem Scale (no mean, SD, or N by group).
Patient satisfaction: (no control group data).
Leaving the study early - at 9 months (data not presented by group).

Notes

Risk of bias

<table>
<thead>
<tr>
<th>Item</th>
<th>Authors' judgement</th>
<th>Description</th>
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<tbody>
<tr>
<td>Allocation concealment??</td>
<td>Unclear</td>
<td>B - Unclear</td>
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</table>

Richardson 2002

Methods
Allocation: randomised using computer programme, stratified for severity, gender, chronicity and ethnicity.
Blindness: rater blind.
Duration: 6 months.

Participants
Diagnosis: chronic schizophrenia of more than 2 years duration.
N=90.
Age: range 23 - 69 years, mean ~ 41 years.
Sex: 59M, 31F.
Race: 43 white European, 42 black Afro-Caribbean, African, British, 5 unknown.
History: duration ill range 1-37 years, mean ~13 (SD 9), CPA level 13=1, 44=2, 8=3.
Setting: Inner city London.

Interventions
1. Art therapy + standard care: therapy for 1.5hrs every week for 12 weeks, 4 people per group. N=43.
2. Standard care by CMHT. N=47.

Outcomes
Leaving the study early.
Mental state: BPRS, BSI, SANS.
Social functioning: IIP32, SFS.
Quality of life: Perc QoL
Unable to use -
Health and social functioning: HoNOS (not validated for use in trials).

Notes

Risk of bias
Characteristics of excluded studies  [ordered by study ID]

<table>
<thead>
<tr>
<th>Study</th>
<th>Reason for exclusion</th>
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<tbody>
<tr>
<td>DeCarlo 1985</td>
<td>Allocation: randomised. Participants: included people with schizophrenia. Interventions: activity therapy (finding magazine pictures to represent themselves, designing coat of arms with sections aimed at self disclosure, listening tasks, eye contact game, role plays) versus verbal therapy versus normal day treatment, no intervention consistent with definition of art therapy.</td>
</tr>
<tr>
<td>Dincin 1982</td>
<td>Allocation: randomised. Participants: mostly people with schizophrenia. Interventions: comprehensive treatment (individual casework, vocational rehabilitation, social rehabilitation, residential facilities, academic programme, prevention of rehospitalisation) versus supportive treatment, no intervention consistent with definition of art therapy.</td>
</tr>
<tr>
<td>Dobson 1995</td>
<td>Allocation: randomised. Participants: people with schizophrenia. Interventions: social skills group versus social milieu group (choice of structured activities for the same time period as the active treatment group), no intervention consistent with definition of art therapy.</td>
</tr>
<tr>
<td>Durell 1968</td>
<td>Allocation: randomised. Participants: people with schizophrenia. Interventions: therapeutic community (no individual psychotherapy, no occupational or recreational therapy, encouraged to seek employment and appropriate social and homelife) versus control group, no intervention consistent with definition of art therapy.</td>
</tr>
<tr>
<td>Gauthier 1972</td>
<td>Allocation: randomised. Participants: people with schizophrenia. Interventions: 8 combinations of milieu A1 (traditional ward with dormitory), milieu A2 (small modern clinical section in research department), group psychotherapy, occupational therapy program (5 activities - one being “1 hour of pictorial expression either on an assigned theme or following personal inspiration”), art therapy just one part of occupational therapy, so impossible to determine the effect of this intervention.</td>
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<tr>
<td>Study</td>
<td>Reason for exclusion</td>
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<tr>
<td>Grodner 1982</td>
<td>Allocation: unclear. Participants: minority of people (7/45) had schizophrenia.</td>
</tr>
<tr>
<td>Karon 1972</td>
<td>Allocation: randomised. Participants: people with schizophrenia. Interventions: psychoanalytic psychotherapy of an active variety without medication versus psychoanalytic psychotherapy of an &quot;ego-analytic&quot; variety with medication versus &quot;treatment as good practice recommends&quot;, no intervention consistent with defintion of art therapy.</td>
</tr>
<tr>
<td>Korlin 2000</td>
<td>Allocation: not randomised, no control group.</td>
</tr>
<tr>
<td>Kremer 1984</td>
<td>Allocation: randomised. Participants: chronic psychiatric patients. Interventions: three different activity groups: cooking, craft, or sensory awareness, no intervention consistent with definition of art therapy.</td>
</tr>
<tr>
<td>Liberman 1981</td>
<td>Allocation: randomised. Participants: people with schizophrenia. Interventions: social skills training versus intensive holistic health therapy (jogging, meditation, yoga and art therapy) + insight orientated family therapy, art therapy just one of holistic therapies, impossible to determine the effect of art therapy alone.</td>
</tr>
<tr>
<td>Lukoff 1986</td>
<td>Allocation: randomised. Participants: people with schizophrenia. Interventions: social skills training versus holistic treatments(exercise, yoga, meditation, stress education sessions, art therapy activity, positive reframing of patients psychotic ideas), art therapy just one of holistic therapies, impossible to determine the effect of art therapy alone.</td>
</tr>
<tr>
<td>Matthews 1979</td>
<td>Allocation: unclear. Participants: people with schizophrenia. Interventions: intensive interpersonal treatment program in community facility versus neuroleptic medication + standard inpatient care, no intervention consistent with defintion of art therapy.</td>
</tr>
<tr>
<td>Odell-Miller 2001</td>
<td>Allocation: randomised to treatment and control, thereafter assessment determined which type of therapy people received - not truly randomised. Participants: people with continuing mental health problems (9/25 had schizophrenia). Interventions: individualised packages of arts therapies some including art therapy but not standard package to compare with controls.</td>
</tr>
</tbody>
</table>
| Yu 2002            | Allocation: randomised. Participants: people with schizophrenia. Interventions: Literature-art-therapy (consisted of practicing calligraphy and painting, reciting poetry, writing art therapy for schizophrenia or schizophrenia-like illnesses (Review) Copyright © 2008 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.
(Continued)

<table>
<thead>
<tr>
<th>Study</th>
<th>Reason for exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>stories, having parties and being given prizes for their achievements) versus routine inpatient care. No interventions consistent with definition of art therapy.</td>
</tr>
</tbody>
</table>
## DATA AND ANALYSES

**Comparison 1. ART THERAPY + STANDARD CARE versus STANDARD CARE**

<table>
<thead>
<tr>
<th>Outcome or subgroup title</th>
<th>No. of studies</th>
<th>No. of participants</th>
<th>Statistical method</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Leaving the study early - short term</td>
<td>1</td>
<td>90</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>0.97 [0.41, 2.29]</td>
</tr>
<tr>
<td>1.1 before the end of therapy</td>
<td>1</td>
<td>90</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>0.97 [0.41, 2.29]</td>
</tr>
<tr>
<td>2 Leaving the study early - medium term</td>
<td>1</td>
<td>47</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Subtotals only</td>
</tr>
<tr>
<td>2.1 before the end of therapy</td>
<td>1</td>
<td>47</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>0.34 [0.15, 0.80]</td>
</tr>
<tr>
<td>2.2 before 6 month follow up</td>
<td>1</td>
<td>90</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>1.09 [0.76, 1.58]</td>
</tr>
<tr>
<td>3 Leaving the study early - long term</td>
<td>1</td>
<td>47</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>0.96 [0.57, 1.60]</td>
</tr>
<tr>
<td>3.1 before 9 month follow up</td>
<td>1</td>
<td>47</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>0.96 [0.57, 1.60]</td>
</tr>
<tr>
<td>4 Mental state: 1a. Average score - short term (endpoint data, SANS, high = poor)</td>
<td>1</td>
<td>73</td>
<td>Mean Difference (IV, Fixed, 95% CI)</td>
<td>-2.30 [-4.10, -0.50]</td>
</tr>
<tr>
<td>4.1 at the end of therapy</td>
<td>1</td>
<td>73</td>
<td>Mean Difference (IV, Fixed, 95% CI)</td>
<td>-2.30 [-4.10, -0.50]</td>
</tr>
<tr>
<td>5 Mental state: 1b. Average score - short term (endpoint skewed data, various scales, high = poor)</td>
<td>1</td>
<td>73</td>
<td>Other data</td>
<td>No numeric data</td>
</tr>
<tr>
<td>5.1 BPRS</td>
<td>Other data</td>
<td>No numeric data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2 BSI</td>
<td>Other data</td>
<td>No numeric data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Social functioning: 1a. Average score - short term (endpoint data, SFS, high = poor)</td>
<td>1</td>
<td>70</td>
<td>Mean Difference (IV, Fixed, 95% CI)</td>
<td>7.20 [-2.53, 16.93]</td>
</tr>
<tr>
<td>6.1 at end of therapy</td>
<td>1</td>
<td>70</td>
<td>Mean Difference (IV, Fixed, 95% CI)</td>
<td>7.20 [-2.53, 16.93]</td>
</tr>
<tr>
<td>7 Social functioning: 1b. Average score - short term (endpoint skewed data, IIP, high = good)</td>
<td>1</td>
<td>74</td>
<td>Other data</td>
<td>No numeric data</td>
</tr>
<tr>
<td>8 Quality of life: Average score - short term (endpoint data, PercQoL, high = good)</td>
<td>1</td>
<td>74</td>
<td>Mean Difference (IV, Fixed, 95% CI)</td>
<td>0.10 [-0.27, 0.47]</td>
</tr>
<tr>
<td>8.1 at end of therapy</td>
<td>1</td>
<td>74</td>
<td>Mean Difference (IV, Fixed, 95% CI)</td>
<td>0.10 [-0.27, 0.47]</td>
</tr>
</tbody>
</table>
### Analysis 1.1. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 1
Leaving the study early - short term.

#### Review:
Art therapy for schizophrenia or schizophrenia-like illnesses

#### Comparison:
1 ART THERAPY + STANDARD CARE versus STANDARD CARE

#### Outcome:
1 Leaving the study early - short term

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Art therapy (n/N)</th>
<th>Standard care (n/N)</th>
<th>Risk Ratio M-H,Fixed, 95% CI</th>
<th>Weight</th>
<th>Risk Ratio M-H,Fixed, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>I before the end of therapy</td>
<td>Richardson 2002: 8/43</td>
<td>9/47</td>
<td>0.97 [0.41, 2.29]</td>
<td>100.0%</td>
<td>0.97 [0.41, 2.29]</td>
</tr>
</tbody>
</table>

Total events: 8 (Art therapy), 9 (Standard care)
Heterogeneity: not applicable
Test for overall effect: Z = 0.07 (P = 0.95)
### Analysis 1.2. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 2

Leaving the study early - medium term.

Review: Art therapy for schizophrenia or schizophrenia-like illnesses
Comparison: 1 ART THERAPY + STANDARD CARE versus STANDARD CARE
Outcome: 2 Leaving the study early - medium term

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Art therapy</th>
<th>Standard care</th>
<th>Risk Ratio</th>
<th>Weight</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n/N</td>
<td>n/N</td>
<td>M-H,Fixed,95% CI</td>
<td></td>
<td>M-H,Fixed,95% CI</td>
</tr>
<tr>
<td>1 before the end of therapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green 1987</td>
<td>5/24</td>
<td>14/23</td>
<td>100.0 %</td>
<td>0.34 [0.15, 0.80]</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>24</td>
<td>23</td>
<td>100.0 %</td>
<td>0.34 [0.15, 0.80]</td>
<td></td>
</tr>
</tbody>
</table>

Total events: 5 (Art therapy), 14 (Standard care)
Heterogeneity: not applicable
Test for overall effect: Z = 2.48 (P = 0.013)

2 before 6 month follow up

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Art therapy</th>
<th>Standard care</th>
<th>Risk Ratio</th>
<th>Weight</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n/N</td>
<td>n/N</td>
<td>M-H,Fixed,95% CI</td>
<td></td>
<td>M-H,Fixed,95% CI</td>
</tr>
<tr>
<td>Richardson 2002</td>
<td>25/43</td>
<td>25/47</td>
<td>100.0 %</td>
<td>1.09 [0.76, 1.58]</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>43</td>
<td>47</td>
<td>100.0 %</td>
<td>1.09 [0.76, 1.58]</td>
<td></td>
</tr>
</tbody>
</table>

Total events: 25 (Art therapy), 25 (Standard care)
Heterogeneity: not applicable
Test for overall effect: Z = 0.47 (P = 0.64)
<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Art therapy</th>
<th>Standard care</th>
<th>Risk Ratio</th>
<th>Weight</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 before 6 month follow up</td>
<td>Richardson 2002</td>
<td>25/43</td>
<td>25/47</td>
<td>1.09 [0.76, 1.58]</td>
<td>0.2 0.5 1 2 5</td>
</tr>
<tr>
<td>Subtotal (95% CI)</td>
<td>43</td>
<td>47</td>
<td>1.09 [0.76, 1.58]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total events: 25 (Art therapy), 25 (Standard care)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: not applicable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test for overall effect: Z = 0.47 (P = 0.64)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Analysis 1.3. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 3
Leaving the study early - long term.

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Art therapy</th>
<th>Standard care</th>
<th>Risk Ratio</th>
<th>Weight</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 before 9 month follow up</td>
<td>Green 1987</td>
<td>13/24</td>
<td>13/23</td>
<td>100.0 % 0.96 [0.57, 1.60]</td>
<td>0.2 0.5 1 2 5</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>24</td>
<td>23</td>
<td>100.0 % 0.96 [0.57, 1.60]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total events: 13 (Art therapy), 13 (Standard care)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterogeneity: not applicable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test for overall effect: Z = 0.16 (P = 0.87)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Review: Art therapy for schizophrenia or schizophrenia-like illnesses
Comparison: 1 ART THERAPY + STANDARD CARE versus STANDARD CARE
Outcome: 3 Leaving the study early - long term

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Art therapy</th>
<th>Standard care</th>
<th>Risk Ratio</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n/N</td>
<td>n/N</td>
<td>M-H,Fixed,95% CI</td>
<td>M-H,Fixed,95% CI</td>
</tr>
<tr>
<td>1 before 9 month follow up</td>
<td>13/24</td>
<td>13/23</td>
<td>0.96 [ 0.57, 1.60 ]</td>
<td></td>
</tr>
</tbody>
</table>

Analysis 1.4. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 4 Mental state: 1a. Average score - short term (endpoint data, SANS, high = poor).

Review: Art therapy for schizophrenia or schizophrenia-like illnesses
Comparison: 1 ART THERAPY + STANDARD CARE versus STANDARD CARE
Outcome: 4 Mental state: 1a. Average score - short term (endpoint data, SANS, high = poor)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Art therapy</th>
<th>Standard care</th>
<th>Mean Difference</th>
<th>Weight</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N Mean(SD)</td>
<td>N Mean(SD)</td>
<td>IV,Fixed,95% CI</td>
<td></td>
<td>IV,Fixed,95% CI</td>
</tr>
<tr>
<td>1 at the end of therapy</td>
<td>35 7.6 (3.4)</td>
<td>38 9.9 (4.4)</td>
<td>-2.30 [ -4.10, -0.50 ]</td>
<td>100.0 %</td>
<td>-2.30 [ -4.10, -0.50 ]</td>
</tr>
</tbody>
</table>

Total (95% CI) 35 38 100.0 % -2.30 [ -4.10, -0.50 ]

Heterogeneity: not applicable
Test for overall effect: Z = 2.51 (P = 0.012)
Review: Art therapy for schizophrenia or schizophrenia-like illnesses
Comparison: 1 ART THERAPY + STANDARD CARE versus STANDARD CARE
Outcome: 4 Mental state: 1a. Average score - short term (endpoint data, SANS, high = poor)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Art therapy</th>
<th>Standard care</th>
<th>Mean Difference</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean(SD)</td>
<td>N</td>
<td>Mean(SD)</td>
</tr>
<tr>
<td>One at the end of therapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Richardson 2002</td>
<td>35</td>
<td>7.6 (3.4)</td>
<td>38</td>
<td>9.9 (4.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-2.30 [ -4.10, -0.50 ]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. 1. Analysis 1.5. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 5 Mental state: 1b. Average score - short term (endpoint skewed data, various scales, high = poor).

Mental state: 1b. Average score - short term (endpoint skewed data, various scales, high = poor)

<table>
<thead>
<tr>
<th>Study</th>
<th>Intervention</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richardson 2002</td>
<td>Art therapy</td>
<td>13.5</td>
<td>6.5</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Richardson 2002</td>
<td>Standard care</td>
<td>16.5</td>
<td>8.6</td>
<td>38</td>
<td></td>
</tr>
</tbody>
</table>

BSI

<table>
<thead>
<tr>
<th>Study</th>
<th>Intervention</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richardson 2002</td>
<td>Art therapy</td>
<td>0.80</td>
<td>0.50</td>
<td>35</td>
<td>This seems to be a very small score for this rating scale and the change between this and the baseline data is only -0.1 for standard care and -0.2 for art therapy.</td>
</tr>
<tr>
<td>Richardson 2002</td>
<td>Standard care</td>
<td>0.90</td>
<td>0.80</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 2. Analysis 1.5.1. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 5 Mental state: 1b. Average score - short term (endpoint skewed data, various scales, high = poor), Subgroup 1 BPRS.
Fig. 3. Analysis 1.5.2. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 5 Mental state: 1b. Average score - short term (endpoint skewed data, various scales, high = poor), Subgroup 2 BSI.

This seems to be a very small score for this rating scale and the change between this and the baseline data is only -0.1 for standard care and -0.2 for art therapy.

Analysis 1.6. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 6 Social functioning: 1a. Average score - short term (endpoint data, SFS, high = poor).

Heterogeneity: not applicable
Test for overall effect: Z = 1.45 (P = 0.15)
Review: Art therapy for schizophrenia or schizophrenia-like illnesses
Comparison: 1 ART THERAPY + STANDARD CARE versus STANDARD CARE
Outcome: 6 Social functioning: 1a. Average score - short term (endpoint data, SFS, high = poor)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Art therapy</th>
<th>Standard care</th>
<th>Mean Difference</th>
<th>Weight</th>
<th>Mean Difference</th>
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</thead>
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<tr>
<td></td>
<td>N Mean(SD)</td>
<td>N Mean(SD)</td>
<td>IV,Fixed,95% CI</td>
<td>IV,Fixed,95% CI</td>
<td></td>
</tr>
<tr>
<td>1 at end of therapy</td>
<td>Richardson 2002</td>
<td>33</td>
<td>117.9 (21.2)</td>
<td>37</td>
<td>110.7 (20.2)</td>
</tr>
</tbody>
</table>

Fig. 4. Analysis 1.7. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 7 Social functioning: 1b. Average score - short term (endpoint skewed data, IIP, high = good).

Social functioning: 1b. Average score - short term (endpoint skewed data, IIP, high = good)
Study | Intervention | Mean | SD | N | Notes
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Richardson 2002</td>
<td>Art therapy</td>
<td>0.90</td>
<td>0.60</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Richardson 2002</td>
<td>Standard care</td>
<td>1.00</td>
<td>0.70</td>
<td>37</td>
<td></td>
</tr>
</tbody>
</table>

Analysis 1.8. Comparison 1 ART THERAPY + STANDARD CARE versus STANDARD CARE, Outcome 8 Quality of life: Average score - short term (endpoint data, PercQoL, high = good).
Review: Art therapy for schizophrenia or schizophrenia-like illnesses
Comparison: 1 ART THERAPY + STANDARD CARE versus STANDARD CARE
Outcome: 8 Quality of life: Average score - short term (endpoint data, PercQoL, high = good)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Art therapy</th>
<th>Standard care</th>
<th>Mean Difference</th>
<th>Weight</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N Mean(SD)</td>
<td>N Mean(SD)</td>
<td>IV,Fixed,95% CI</td>
<td>IV,Fixed,95% CI</td>
<td></td>
</tr>
<tr>
<td>1 at end of therapy</td>
<td>Richardson 2002</td>
<td>35</td>
<td>4.6 (0.7)</td>
<td>39</td>
<td>4.5 (0.9)</td>
</tr>
</tbody>
</table>

Total (95% CI) 35 39 100.0 % 0.10 [-0.27, 0.47]
Heterogeneity: not applicable
Test for overall effect: Z = 0.54 (P = 0.59)
Review: Art therapy for schizophrenia or schizophrenia-like illnesses
Comparison: 1 ART THERAPY + STANDARD CARE versus STANDARD CARE
Outcome: 8 Quality of life: Average score - short term (endpoint data, PercQoL, high = good)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Art therapy</th>
<th>Standard care</th>
<th>Mean Difference</th>
<th>Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean(SD)</td>
<td>N</td>
<td>Mean(SD)</td>
</tr>
<tr>
<td>1 at end of therapy</td>
<td>Richardson 2002</td>
<td>35</td>
<td>4.6 (0.7)</td>
<td>39</td>
</tr>
</tbody>
</table>

**WHAT’S NEW**

Last assessed as up-to-date: 25 July 2005

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 April 2008</td>
<td>Amended</td>
<td>Converted to new review format.</td>
</tr>
</tbody>
</table>
HISTORY
Review first published: Issue 4, 2002

Date Event Description
26 July 2005 New citation required and conclusions have changed Substantive amendment

CONTRIBUTIONS OF AUTHORS
Rachel Ruddy - initiated review, protocol production, study searching and selection, data extraction, assimilation, report writing, review maintenance.

David Milnes - helped with protocol and data extraction.

DECLARATIONS OF INTEREST
None known.

RESOURCES OF SUPPORT

Internal sources

- Leeds Community Mental Health Trust, UK.
- University of Leeds, UK.
- York Primary Care Trust, UK.

External sources

- No sources of support supplied