Distraction techniques for schizophrenia

Charlotte J Crawford-Walker¹, Adrian King², Sally Chan³

¹Hull and East Riding Community Trust, Bridlington, UK. ²Research and Development, Hull and East Yorkshire Community NHS Trust, Willerby, Hull, UK. ³The Nethersole School of Nursing, The Chinese University of Hong Kong, Shatin, China

Contact address: Charlotte J Crawford-Walker, Hull and East Riding Community Trust, Buckrose Ward, Bridlington and District Hospital, Bridlington, East Yorkshire, UK. Charlotte.Crawford-Walker@herch-tr.nhs.uk. (Editorial group: Cochrane Schizophrenia Group.)

**Abstract**

**Background**

Distraction techniques are a form of coping strategies used in cognitive behavioural techniques. They may be of value as an adjunctive treatment for people with schizophrenia or schizophrenia-like illnesses.

**Objectives**

To review the effects of distraction techniques for people with schizophrenia.

**Search strategy**

We searched the Cochrane Schizophrenia Group’s Register (October 2003), manually searched reference lists and contacted relevant authors.

**Selection criteria**

We included all randomised controlled trials comparing distraction techniques with other treatments for schizophrenia.

**Data collection and analysis**

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

**Main results**

In terms of mental state, distraction techniques did not have a clear effect (n=60, 1 RCT, MD endpoint BPRS 1.60 CI -0.49 to 3.69). Distraction does not obviously engage people in the studies (n =159, 5 RCTs, RR leaving the study before completion 1.08 CI 0.72 to 1.63).

**Authors’ conclusions**

Clinicians, researchers, policy makers and recipients of care cannot be confident of the effects of distraction techniques from the findings of this review. The few pioneering studies are small, short and poorly reported. Further data from already completed trials might help.
inform practice, but more trials do seem to be justified as some of these potentially simple techniques, even if their effect is negligible, could be widely implemented and prove more acceptable than other more intrusive treatments.

**PLAIN LANGUAGE SUMMARY**

**Distraction techniques for schizophrenia**

People with schizophrenia often suffer from hallucinations. Various forms of distraction from these hallucinations have been evaluated in trials, but reporting is poor, and the few studies are small and short. Although there is no evidence that they have a major effect, further trials are justified as some of these potentially simple techniques, even if their effect is negligible, could be widely implemented and prove more acceptable than other more intrusive treatments.
BACKGROUND

Schizophrenia affects about one percent of the population (Leff 1991) and the majority of these people experience auditory hallucinations (Dawber 1997). Neuroleptic or antipsychotic medication tends to be the initial treatment for illness such as schizophrenia. However, five to twenty-five percent of people with the illness have inadequate response to medication (Brenner 1992, Haddock 1996).

Psychological interventions such as cognitive behavioural therapy for psychosis have been found to produce responses in about 50% of people (Kuipers 1997), but it is unclear which elements of the therapy prompt this improvement (Garety 1997). Over the last decade, the use of a specific cognitive behavioural technique, Coping Skills Enhancement, has become a well-established method of helping sufferers cope with hearing voices and/or intrusive thoughts (Brooker 2001, James 1983). Distraction techniques can form a part of Coping Skills Enhancement and, depending upon which treatment is of most benefit to the person with schizophrenia, they can offer various means of distraction from the voices (Sullivan 1997).

Distraction techniques tend to fall into three categories: cognitive strategies, behavioural strategies and physiological strategies (Falloon 1981). However, these are not discrete.

1. Cognitive: Vocal tasks e.g. reading aloud from a book or counting objects can reduce the duration, loudness and clarity of the voices (Tarrier 1987, Margo 1981). It may be that the more meaningful the distraction, the better the effect (Stuart 1991), or that activities which included pointing out objects helped to lessen the effects of the voices (James 1983). Humming may also prove useful (Green 1990). There is some evidence that thought stopping, as a technique for controlling hallucinations, might be beneficial (Allen 1985) as well as focusing on hallucinations and describing them in detail. Other cognitive techniques include talking back to the voices (Falloon 1981) and responding only to the pleasant ones (Romme 1989). It is thought these techniques may reduce the auditory hallucinations (Dawber 1997, Holland 1999).

2. Behavioural: Social activities would be included as behavioural strategies. Men may prefer more isolative techniques whereas women may prefer to be more interactive (Buchanan 1993). Clients might choose to interact with each other or staff, or will perhaps prefer to isolate themselves. Suggested strategies include making a conscious effort to distract oneself from the voices, such as by reading or going for a walk.

3. Physiological: Relaxation, not using imagery, may reduce feelings of anxiety. Imagery may be exasperating as people with schizophrenia can have difficulty distinguishing between internal or external stimuli (Harding 1996). The person with schizophrenia could, however, be asked to provide his or her own images and thus retain control (Harding 1996, Holland 1999). Using an earplug in the dominant ear may be beneficial (Kingdon 1991). Jogging or using an exercise bike has also been tried (Falloon 1981). Personal stereos (with a range of music available) may benefit some people. Certainly music has been found to be a help to some clients (Tarrier 1987).

We think that nursing staff commonly use some of these techniques in one form or another but could not find surveys to support this. In order to support nursing endeavour and intuition, it is important to systematically review appropriate research findings (Fowler 1995, Garety 1997).

OBJECTIVES

To review the clinical effects of distraction techniques for people with schizophrenia or schizophrenia-like illnesses.

METHODS

Criteria for considering studies for this review

Types of studies

We included all relevant randomised controlled trials. We included trials that were described as double-blind, but that did not mention whether the study was randomised, in a sensitivity analysis. If there was no substantive difference within primary outcomes (see ‘Types of outcome measures’) when these studies were added, then we included them in the final analysis. If there was a substantive difference, we used only clearly randomised trials and described the results of the sensitivity analysis in the text. We excluded quasi-randomised studies, such as those allocating by using alternate days of the week.

Types of participants

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

Types of interventions

1. Distraction techniques, for any length of time, as an adjunctive treatment for schizophrenia or schizophrenia-like illnesses, regardless of the other interventions being used (e.g. medication, hospitalisation, problem solving therapy, psycho-education, social skills training, cognitive-behavioural therapy, family therapy or psycho-dynamic psychotherapy).
For the purposes of this review, we considered distraction techniques to be coping strategies involving a diversion. This can be a passive diversion, for example watching television, listening to music, using headphones or relaxation. Alternatively, the distraction can involve activity such as playing an instrument, writing, reading, gardening, walking or any form of exercise. Other distraction techniques included indulgence (eating, smoking, drinking), socialisation, suppression of unwanted thoughts and problem solving for future events. It has been suggested that all distraction techniques were related to attention (Carr 1988). For this review we will use the basis of diverting attention away from hallucinations as a deciding factor in whether a distraction technique has been utilised.

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/or day hospital.

3. Biological treatments
This includes medication and any other medical interventions used.

4. Other psychological treatments
For example problem solving therapy, psycho-education, cognitive-behavioural therapy, family therapy or psychodynamic psychotherapy.

5. Social treatments
This includes social skills training and life skills training.

Types of outcome measures
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).

Primary outcomes
1. Mental state
1.1 No clinically important change in general mental state
1.2 No clinically important change in specific symptoms (auditory hallucinations)

Secondary outcomes
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 Not any change in global state
2.5 Average endpoint global state score
2.6 Average change in global state scores
2.7 No decrease in medication
2.8 Increase in medication
3. Service outcomes
3.1 Hospitalisation
3.2 Time to hospitalisation
4. Mental state
4.1 Not any change in general mental state
4.2 Average endpoint general mental state score
4.3 Average change in general mental state scores
4.4 Not any 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 Not any change in general functioning
6.3 Average endpoint general functioning score
6.4 Average change in general functioning scores
6.5 No clinically important change in specific aspects of functioning, such as social or life skills
6.6 Not any change in specific aspects of functioning, such as social or life skills
6.7 Average endpoint specific aspects of functioning, such as social or life skills
6.8 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 Not any change in general behaviour
7.3 Average endpoint general behaviour score
7.4 Average change in general behaviour scores
7.5 No clinically important change in specific aspects of behaviour
7.6 Not any change in specific aspects of behaviour
7.7 Average endpoint specific aspects of behaviour
7.8 Average change in specific aspects of behaviour
8. Adverse effects
8.1 No clinically important general adverse effects
8.2 Not any general adverse effects
8.3 Average endpoint general adverse effect score
8.4 Average change in general adverse effect scores
8.5 No clinically important change in specific adverse effects
8.6 Not any change in specific adverse effects
8.7 Average endpoint specific adverse effects
8.8 Average change in specific adverse effects
9. Engagement with services
9.1 No clinically important engagement
9.2 Not any engagement
9.3 Average endpoint engagement score
9.4 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 Not any change in quality of life
11.3 Average endpoint quality of life score
11.4 Average change in quality of life scores
11.5 No clinically important change in specific aspects of quality of life
11.6 Not any change in specific aspects of quality of life
11.7 Average endpoint specific aspects of quality of life
11.8 Average change in specific aspects of quality of life
12. Economic outcomes
12.1 Direct costs
12.2 Indirect costs

Search methods for identification of studies

Electronic searches
1. We searched The Cochrane Schizophrenia Group's Register (October 2003) with the phrase:
   [(thought-stop) or (coping* and strateg*) or self monitoring* or reading* or earplug* or stereo* or distract* or thought-block* or (thought and block*) or (thought and stop*) or headphone* or (head and phone*) or socialis* or diversion* or *coping* or (passive and diversion) or suppre* in title or *thought-stop or diversion* or *coping* or *self monitoring* or *reading* or (coping* and strateg*) or (passive and diversion) or *earplug* or *stereo* or *distract* or *thought-block or (thought and block*) or (thought and stop*) or headphone* or (head and phone*) or socialis* or suppre* in abstract or index terms of REFERENCE] or [Action Oriented Group Therapy or Active Learning or Activity Group or active group or Ambulant Group Therapy or Ambulatory Care or Bioenergetic Exercise Treatment or Biofeedback or Bodily Awareness Techniques or Brief Patient Education or Censure / Punishment or Communication or Companion Program or Concept Formation or Conversation or Conversation Skills Training or Coping Oriented Group Psychotherapy or Cues or Dance Therapy or Decision Making or Didactic Instruction or Discrimination Learning or Discussion or Discussion Group or Education or Enhanced Learning or Enhanced Psychosocial and Pharmacological Treatment or Exercise Therapy or Experimental Problem Solving Treatment Group or Feedback or Film in Cognitive Behavioral Therapy or Game or Goal-Directed Group or Gradual Vocational Program or Group Living or Group Psychoeducation or Group Work Conditions or High Expectation Environment or Homework or Human Relations Training Program or Imitation Learning or Interaction Group or Interaction With Others or Interpersonal Problem-Solving Group or Interpersonal Skills Training or Leisure Activities or Life Skills Training or Low Expectation Environment or Management of Symptoms with Behavior Therapy or Milieu Therapy or Mind-Body Relations or Modeling on Behavior Therapy or Modular Skills Training or Movement Therapy or Multimedia Computer Study or Music Therapy or Need-Based Intervention or Non-Contingent Reinforcement or Other Contact with mentally ill person or Other Educational Video or Other Interactive-Behavioural Training or Other Modified Morita Therapy or Other Random Episode Silent Thought (REST) or Other Symptom group management or Physical Activities or Physical Contact Therapy or Play Therapy or Psychiatric Somatic Therapies or Reading or Reading in Behavior Therapy or Reality Orientation or Reasoned Action Group or Recreation or Relaxation* or Religion or Remotivation Group or Scaffolding Instruction or Semantic Elaboration or Singing or Social Activity Group or Social Milieu Therapy or Social Skills Training or Social Support or Socioenvironmental Therapy or Socioenvironmental Therapy or Sociotherapy or Stress Management or Structured Learning Therapy or Supportive* or Thought Stopping in Behavior Therapy or Training in Community Living Model or Verbal Conditioning or Verbal Material or Verbal Oriented Therapy or Vicarious Therapy Pretreatment or Video recording or Vigilance Training or Vocational Education or Work Therapy]]
The Schizophrenia Groups trials register is based on regular searches of BIOSIS Inside; CENTRAL; CINAHL; EMBASE; MEDLINE and PsychINFO; the hand searching of relevant journals and conference proceedings, and searches of several key grey literature sources. A full description is given in the Group's module.

Searching other resources
1. Reference searching
   We also inspected references of all identified studies, included or excluded, for more studies.
2. Hand searching
   Where one journal had clearly published more relevant studies than others, if it had not already been hand searched, we would have hand searched the last decade to identify further reports. We also searched The Conference on Self Management of Schizophrenia for relevant studies.
3. Personal contact
   We contacted the authors of relevant included studies to enquire about other sources of relevant information.

Data collection and analysis
1. Selection of trials
   We (Charlotte Crawford-Walker (CC-W), Adrian King (AK)) independently inspected the citations identified from the search. We identified potentially relevant abstracts and ordered full papers for reassessment for inclusion and methodological quality. We discussed and reported any disagreements.
2. Assessment of quality
   We allocated trials to three quality categories, as described in the Cochrane Collaboration Handbook (Clarke 2002) by each reviewer. When disputes arose as to which category a trial was allocated, we attempted to resolve them by discussion. When this was
not possible and further information was necessary to clarify into which category to allocate the trial, data were not entered and the trial was allocated to the list of those awaiting assessment. Only trials in Category A or B were included in the review.

3. Data management
3.1 Data extraction
Again working independently we extracted data and, where further clarification was needed, contacted the authors of trials to provide missing data.

3.2 Intention to treat analysis
We excluded data from studies where more than 50% of participants in any group were lost to follow up (this does not include the outcome of ‘leaving the study early’). In studies with less than 50% dropout rate, people leaving early were considered 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 this data to trials with less attrition, but presented them separately.

4. Data analysis
4.1 Binary data
For binary outcomes we calculated a standard estimation of the random effects risk ratio (RR) and its 95% confidence interval (CI). Where possible, we also calculated the weighted number needed to treat/harm statistic (NNT/H), and its 95% confidence interval (CI), using Visual Rx (http://www.nntonline.net/) which takes account of the event rate in the relevant control group. If heterogeneity was found (see section 5) we used a random effects model.

4.2 Continuous data
4.2.1 Skewed data: continuous data on clinical and social outcomes are often not normally distributed. 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 reported in the paper or were obtainable from the authors; (b) when a scale started from a finite number (such as zero), the standard deviation, when multiplied by two, was less than the mean (as otherwise the mean was unlikely to be an appropriate measure of the centre of the distribution (Altman 1996)). Endpoint scores on scales often have a finite start and end point and this rule can be applied to them.

4.2.2 Summary statistic: for continuous outcomes a weighted mean difference (WMD) between groups was estimated. Again, if heterogeneity was found (see section 5) we used a random effects model.

4.2.3 Valid scales: we included continuous data from rating scales only if the measuring instrument had been described in a peer-reviewed journal and the instrument was either a self report or completed by an independent rater or relative (not the therapist). (Marshall 2000).

4.2.4 Endpoint versus change data: where possible endpoint data were presented, and if both endpoint and change data were available for the same outcomes then only the former were reported in this review.

4.2.5 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 by 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 co-efficient (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 co-efficients and relevant data documented in the report, synthesis with other studies would have been possible using the generic inverse variance technique.

5. Investigation for heterogeneity
Firstly, we considered all the included studies within any comparison to judge clinical heterogeneity. Then we visually inspected graphs to investigate the possibility of statistical heterogeneity. This was supplemented, primarily, by employing the I-squared statistic. This provides an estimate of the percentage of inconsistency thought to be due to chance. Where the I-squared estimate included 75%, this was interpreted as evidence of high levels of heterogeneity (Higgins 2003). If inconsistency was high, we did not summarise the data, but presented them separately and investigated reasons for heterogeneity.

6. Addressing small study 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 1997).

7. Sensitivity analyses
The inclusion of data from studies that had implied that allocation was random, rather than making it explicit and also from studies with high attrition rates was analysed in a sensitivity analysis (primary outcomes only).

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 distraction techniques.

**RESULTS**

**Description of studies**

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

1. Overview of search results

The search strategy identified 296 abstracts of which 37 referred to potentially eligible studies. From these 37 studies 30 did not meet inclusion criteria, two had not been completed and five could be included. For substantive descriptions of studies please see included and excluded studies tables.

2. Awaiting assessment

No studies await assessment.

3. Ongoing studies

We identified two ongoing studies. Adams 2000 is thought to be ongoing. It is a randomised controlled trial investigating the effects of exercise on the symptoms of people with schizophrenia. We do not think it is a large study and do not know when it will be finished. Haddock 2000 describes a study to investigate the effects of cognitive behavioural therapy, including distraction, on people with a diagnosis of schizophrenia and drug/alcohol misuse problems. We are unsure of when this study will conclude and its projected size.

4. Excluded studies

There are currently 30 excluded studies, seven of which were not randomised. Of these seven, one was a description of services, the allocation procedure for one was unclear, two based allocation on clinical observation and one on order of admission, one matched people in experimental and control groups and one subjected everyone to the same stimuli. Of the 23 excluded randomised studies, 15 were not exclusively concerned with distraction techniques, including seven on coping skills training courses, and some on social groups and psychoeducation. Half of the other studies were potentially eligible for inclusion but did not report any usable data.

5. Included studies

We identified only five distraction techniques studies for inclusion.

5.1 Duration

Four of the studies concentrated on short term follow up results only i.e. <12 weeks. The studies lasted four weeks, six weeks, eight weeks and three months respectively. Only one study included long term follow up at six months.

5.2 Participants and setting

Three of the five studies were based in the USA, one in Canada and one in the UK. All participants had been diagnosed with schizophrenia according to DSM criteria. Two trials recruited adults from outpatient’s appointments and three studies recruited inpatients. Buccheri 1996 recruited outpatients who experienced auditory hallucinations on a daily basis and Cole 1997 inpatients during a rehabilitation programme. Lamontagne 1983 recruited people who had been inpatients for a period exceeding six months with an average stay of six years. Medalia 2000 enlisted people who had been in hospital for a minimum period of six weeks. Tarrier 1993 was the only UK study with outpatients who had been experiencing auditory hallucinations for at least six months.

5.3 Study size

No trial reported a pre-study power calculation. The trials, in ascending order of size, are Buccheri 1996 (17), Lamontagne 1983 (20), Tarrier 1993 (27), Medalia 2000 (60) and Cole 1997 (62).

5.4 Interventions

In Buccheri 1996, the intervention involved each participant learning one distraction technique per week which they would then practice twice a day. A new technique was taught each week. Cole 1997 used exercise as a distraction technique. Both the experimental and control group were involved in the “Partial Hospitalisation Program”. No further details are available of what this entailed. The distraction technique utilised by Lamontagne 1983 was thought stopping, this involved classes in thought stopping and the participants were encouraged to use the techniques between classes. Medalia 2000 used computer attention training as a distraction technique with a control group watching documentaries, another recognised technique. Tarrier 1993 involved Coping Skills Enhancement which is a specific distraction technique including attention switching, behavioural strategies and physiological strategies as discussed in the background to the review.

5.5 Outcomes

All studies report short-term outcomes. Some data were solely presented as statements, graphs or tables without standard deviations or standard errors being reported. Raw numbers were unavailable in some cases.

5.5.1 General

We could only extract ‘leaving the study early’ from all five studies.

5.5.2 Continuous outcomes

Details of the scales that supplied usable data for this review are given below. Reasons for exclusion of data from other scales are given in the outcomes column of the ‘characteristics of included studies’ table.

5.5.3 Missing outcomes
No data were available on global state, service outcomes, general functioning, behaviour, adverse effects, engagement with the service, quality of life or economic outcomes.

Risk of bias in included studies

1. Randomisation
We could not rate any study as quality Category A. All met quality level B (moderate risk of bias). This means that each of the studies simply stated that randomisation took place, without assuring the reader that every effort was made to conceal the order of allocation from everyone.

2. Blindness
Trialists were aware of the possibility of the introduction of observer bias by not blinding the raters to the group to which people were allocated. None of the studies described the process of blinding in adequate detail. Despite the considerable difficulty of blinding, only the Lamontagne 1983 blinded the research nurses conducting the assessments on participants. No study tested the integrity of blinding.

3. Follow up
Overall, reasons for withdrawal from studies are well reported, although those who left the treatment early were not monitored in order to acquire data for a full intention to treat analysis.

Effects of interventions

1. The search
The initial search identified 296 citations. We were only able to include five of these in the review. We contacted authors for further information regarding studies but had limited response. We also checked the reference lists of included studies in an attempt to identify other relevant work but were unable to identify further studies for inclusion.

2. COMPARISON 1: DISTRACTION TECHNIQUE + STANDARD CARE VS HEALTH PROMOTION + STANDARD CARE
2.1 Mental state
Only one study reported usable data on mental state (Medalia 2000). There appeared to be no significant difference in terms of treatment response as defined by BPRS endpoint score between computer attention training and national geographic documentaries in the short term (n=60, MD 1.60 CI -0.49 to 3.69). Tarrier 1993 also used BPRS to calculate a total symptom severity score as well as PSE to count the number of symptoms for a Coping Skills Enhancement group and Problem Solving group at six and 26 weeks and found that this was not statistically significant in either case. The data were too skewed to be represented graphically.

2.2 Leaving the study early
Four studies reported data for the short term (0 to 12 weeks) and one reported long term data. About 30% of the people in these studies left before study completion. There was no significant advantage to distraction techniques over health promotion in either the short term (n=159, 5 RCTs, RR 1.02 CI 0.68 to 1.55) or over a longer period (RR 2.40 CI 0.28 to 20.24). Over any time period, we found no clear difference in the numbers of people dropping out after being randomised to the intervention or control groups (n=186, 5 RCTs, RR 1.08 CI 0.72 to 1.63).

2.3 Missing outcomes
We found no data on global state, service outcomes, general functioning, behaviour, adverse effects, service engagement, quality of life or economic outcomes.

DISCUSSION

1. The search
We undertook an extensive electronic search. It is perfectly feasible, however, that despite these efforts, we could have failed to identify some studies. With only a few exceptions, each database yielded a few more unique reports to inspect. We think it unlikely, however, that we have failed to find large studies by our search methods.

2. COMPARISON 1: DISTRACTION TECHNIQUE + STANDARD CARE VS HEALTH PROMOTION + STANDARD CARE
2.1 Mental state
Trialists invested time and effort rating mental state using several scales. Efforts of everyone in Buccheri 1996, Cole 1997, and Lamontagne 1983 were entirely wasted as all data for this outcome proved unusable and only some of the mental state data from Tarrier 1993 could be reproduced for this review. It does not seem right that such efforts on the part of trialists and participants are squandered and more clear data reporting could go a long way to ensure that the findings can be used and inform future care. The overall impression suggests that distraction techniques do not cause significant effects in mental state. However, due to the limited data, we cannot be sure of this.

2.2. Leaving the study early
About 30% of participants left the studies before completion, even over quite short periods of time. This is similar to many recent drug studies (Thornley 1998). This appears to be a high attrition rate, though some studies had a much higher number of participants leaving the study (Cole 1997, Buccheri 1996) than others. Distraction techniques did not seem to promote or hinder leaving the study early. It could be argued that the distraction techniques failed to engage participants in studies in a more meaningful way than the control activities. We are unable to speculate whether some distraction techniques are more likely to keep people engaged in the long term than other techniques.
2.3 Missing outcomes

Of the 12 broad classes of outcomes prior to the review, data were only available on two, i.e. mental state and leaving the study early. Although mental state was the primary outcome for this review, it is disappointing that data were not available for other outcome measures. Some included studies measured other outcomes, but these were not recorded in the results of the trials. Lamontagne 1983 used a behaviour scale (NOSIE) and also intended to measure general functioning through social contact (MACC II). Results from these scales were unavailable. Buccheri 1996 failed to record many results in the report and we were unable to obtain raw data despite considerable efforts to contact the authors. Cole 1997 reported some usable data in the dissertation report but, because of the high number who left the study early, the results could not be used. Finally Haddock 1998 intended to collect data on outcome measures other than mental state and attrition, but failed to report numbers of people allocated to each group. We have had no response from the authors (see excluded studies).

AUTHORS’ CONCLUSIONS

Implications for practice

1. People with schizophrenia and their families
The main benefit of distraction techniques for people with schizophrenia is that a large number of techniques exist which people can use independently and this may assist the person experiencing auditory hallucinations to feel involved in the management of their own care. Results from these trials have not shown them to have dramatic effects, but there are only a few small scale studies.

2. Clinicians
Clinicians may feel that distraction techniques are worth the time and effort, as an addition to standard care, assuming that the patient wants to try them. As there is no evidence to support or refute their effects clinicians may want to organise their own study.

3. Managers
As always, service managers and funders have to weigh up the costs to healthcare and the benefits of this treatment for people with schizophrenia. They may feel that the resources required to adequately implement distraction techniques might be better used in other ways. However if people could be clearly shown to benefit, distraction techniques could be implemented within inpatient units and amongst outpatients for a relatively low cost. A definitive study is needed.

Implications for research

1. General

If the CONSORT recommendations, first published in 1996 (Begg 1996, Moher 2001) had been followed in the reporting of the included studies and at least one of the excluded trials (Haddock 1998), we may have had more data to present and a better impression of the effects of these techniques. Certainly the CONSORT standard of reporting of future studies should help decrease some of the problems and waste we have noted. Indeed, much important data within the included studies were so poorly reported that clinicians, funders and recipients of care might have reason to feel let down by the research community.

2. Specific

2.1 Individual patient data
This work would be more informative if more individual patient data had been available.

2.2 Future versions of this review
Further updates of this review should be able to include, at least, the two new trials on distraction techniques we have identified already.

2.3 Future trials
Large simple, well-designed and reported trials continue to be justified. All data in this review are unstable and a large, pragmatic study should be undertaken to settle arguments about the value of this widely used therapy. Entry criteria should be broad, interventions accessible and outcomes clear and well reported. All the included studies focused primarily on the improvement of mental state when assessing the effects of distraction techniques. Other outcomes such as general functioning, behaviour, satisfaction, engagement with the service and adverse effects should be investigated in future trials. More complete follow-up data would produce a more valid picture of the lasting effect of distraction techniques on the course of the illness. All such measures, however, should be readily understandable by all users of this research, and binary as well as continuous data should be reported. Data collection should allow for economic evaluations (cost-effectiveness and cost-benefit) of the two intervention strategies being compared.

ACKNOWLEDGEMENTS

We would like to thank everyone at the Cochrane Schizophrenia Group for their invaluable expertise, assistance and enthusiasm throughout the process of the review.

We also wish to acknowledge Phil Gilbank, Dawn Houston, Tony Hostick and David Owens for their support with the review.