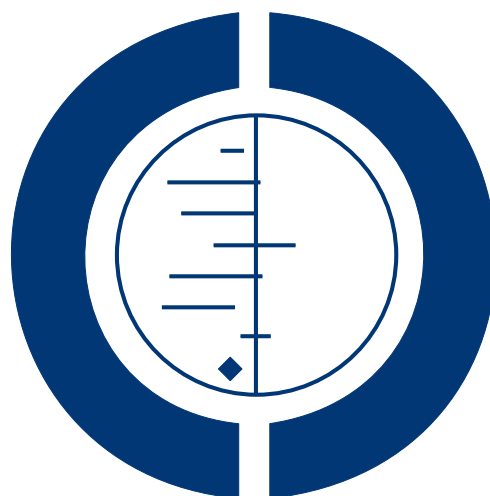


Life skills programmes for chronic mental illnesses (Review)

Tungpunkom P, Nicol M



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ABSTRACT

Background

Most people with schizophrenia have a cyclical pattern of illness characterised by remission and relapses. The illness can reduce the ability of self-care and functioning and can lead to the illness becoming chronic and disabling. Rehabilitation is one of the important parts of treatments. Life skills programmes, emphasising the needs associated with independent functioning, are often a part of the rehabilitation process. These programmes, therefore, have been developed to enhance independent living and the quality of life for people with schizophrenia living in the community.

Objectives

To review the effectiveness of life skills programmes with standard care or other comparable therapies for people with chronic mental health problems.

Search strategy

We searched the Cochrane Schizophrenia Group Trials Register (May 2007) which is based on regular searches of BIOSIS, CENTRAL, CINAHL, EMBASE, MEDLINE and PsycINFO. Hand searches and scrutiny of references supplemented this process. We inspected references of all identified studies for further trials.

Selection criteria

We included all relevant randomised or quasi-randomised controlled trials for life skills programmes versus other comparable therapies or standard care involving people with serious mental illnesses.

Data collection and analysis

We extracted data independently. For dichotomous data we calculated relative risks (RR) and their 95% confidence intervals (CI) on an intention-to-treat basis, based on a random effects model. We calculated numbers needed to treat/harm (NNT/NNH) where appropriate. For continuous data, we calculated weighted mean differences (WMD) again based on a random effects model.

Main results

We included four randomised controlled trials with a total of 318 participants. These evaluated life skills programmes versus standard care, or support group. We found no significant difference in life skills performance between people given life skills training and standard care (Patterson 2003, n=32, WMD -1.10 CI -7.8 to 5.6). Life skills training did not improve or worsen study retention (n=60, 2 RCTs, RR 1.16 CI 0.4 to 3.4). We found no significant difference in PANSS positive, negative or total scores between life skills intervention and standard care. Depression scores (HAM-D) did not reveal any significant difference between groups (Patterson 2003, n=32, WMD -0.70 CI -4.1 to 2.7). We found quality of life scores to be equivocal between participants given life skills training (Patterson 2003, n=32, WMD -0.02 CI -0.1 to 0.03) and standard care. Life skills compared with support groups also did not reveal any significant differences in PANSS scores, quality of life, or social performance skills (Patterson 2006, n=158, WMD -0.90 CI -3.4 to 1.6).

Authors' conclusions

Currently there is no good evidence to suggest life skills programmes are effective for people with chronic mental illnesses. More robust data are needed from studies that are adequately powered to determine whether life skills training is beneficial for people with chronic mental health problems.

PLAIN LANGUAGE SUMMARY

Plain language summary

People with chronic mental illness often experience a cyclical pattern, characterised by more than one relapse in their lifespan. This can affect their ability to care for themselves and function normally. Life skills programmes are one intervention designed to help during the rehabilitation process by enhancing the ability of people with chronic mental illness to live independently. The elements of life skills programmes include training in managing money, organising and running a home, domestic skills and personal self care and related interpersonal skills. The aim of life skills is to enhance independent functioning so that people are able to remain in the community for longer periods and achieve a better quality of life.

We evaluated the effectiveness of life skills programmes compared with either other comparable therapies or standard/usual care for people with chronic mental health problems. We included four randomised trials.

Outcome data were sparse, with most studies being too small to adequately detect potential benefits from life skills programmes. Currently there is no evidence from randomised trials to suggest that life skills programmes improve the well-being of people with schizophrenia/chronic mental illnesses, or conversely that it is ineffective. Larger trials are needed to determine whether life skills programmes are beneficial for people with chronic mental illnesses.

BACKGROUND

Schizophrenia can occur as a single episode of illness. By far the greater proportion of sufferers, however, have remission and relapses; for many of those who develop schizophrenia it becomes a chronic and often disabling illness (Bustillo 2000). Preceding the movement of care into the community the rehabilitation process was mostly provided by the large mental health institutions in which sufferers often spent many years (Wing 1970). This pattern of care has changed (Hume 1995). Currently, few chronically mentally ill people, perhaps with the exception of those in a secure forensic setting, spend longer than a few weeks per year in hospital, and most care, certainly within the UK, is community-based (Davies 1990; Leff 1992). Relative to other chronic illnesses, the personal and economic costs of schizophrenia are considerable (Knapp 1994; Bustillo 2000).

People with schizophrenia often receive different types of treatment concurrently. Medication is commonly used for management of symptoms but the social disability which often accompanies the illness can require a variety of psychological, nursing and occupational therapies (Pines 2000; Marlowe 2003). These treatments are subsumed under the general term 'rehabilitation'. The elements of a rehabilitation package for a person with a chronic mental illness, whether in the community or hospital, may include creative therapies, art (Ruddy 2005), drama (Ruddy 2007), music (Gold 2005), poetry, educational activities (Bhoopathi 2006), life skills programmes (Robertson 1998), work based therapy, and recreational activities (Hume 1995). Life skills programmes, a frequent element of the rehabilitation process, address the needs associated with independent functioning. This can involve encouraging financial awareness, communication, domestic, personal self-care and community living skills.

OBJECTIVES

To evaluate the effects of life skills programmes for people with chronic mental health problems compared to standard care or other interventions.

CRITERIA FOR CONSIDERING STUDIES FOR THIS REVIEW

Types of studies

We included all relevant randomised or quasi-randomised controlled trials. Results from trials that used quasi-random allocation, such as by day of week or month, were compared in sensitivity analyses with trials using more robust means of randomisation.

Types of participants

We included adults between the ages of 18-60 with chronic mental illnesses diagnosed by any criteria. People with dementia, alcoholism, serious suicidal risk, and organic brain syndrome were excluded.

Types of intervention

1. Life skills programmes were defined as any group or individual programme involving independent functioning in daily living. These programmes could include training in managing money, organising and running a home, domestic skills and personal self care and related interpersonal skills. Evaluation of specific social skills training was not a focus of this review.

Programmes of five sessions or less were considered as 'brief', and six or more as 'other'. Place of residence was defined as either 'hospital' or 'community' for the purposes of this review. For example, if people were in hospital at the time of attending a day-hospital based programme they were considered to be receiving 'hospital-

based' care. If, on the other hand, they attended the day hospital from home then they were considered to be receiving 'community-based' care. Trained staff were those personnel who held a professionally recognised health care qualification.

2. Attention control condition: a support group session that provided a supportive environment for addressing personal problems.

3. Standard care: the normal level of psychiatric care provided in the area where the trial is being carried out.

Types of outcome measures

The primary outcomes* were self-care functioning at personal and domestic level (life skills).

1. Life skills

1.1 No clinically important change in general life skills*

1.2 Average endpoint general life skills score

1.3 Average change in general life skills scores

1.4 No clinically important change in specific life skills

1.5 Average endpoint specific life skills score

1.6 Average change in specific life skills scores

2. Global state

2.1 Relapse*

2.2 No clinically important change in global state (as defined by individual studies)

2.3 Average endpoint global state score

2.4 Average change in global state scores

3. Service outcomes

3.1 Hospitalisation

3.2 Time to hospitalisation

4. Mental state (with particular reference to the positive and negative symptoms of schizophrenia)

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 (positive symptoms of schizophrenia, negative symptoms of schizophrenia, depression, mania)

4.5 Average endpoint specific symptom score

4.6 Average change in specific symptom scores

5. General functioning

5.1 No clinically important change in general functioning

5.2 Average endpoint general functioning score

5.3 Average change in general functioning scores

5.4 No clinically important change in specific aspects of functioning, such as social or life skills

5.5 Average endpoint specific aspects of functioning, such as social or life skills

5.6 Average change in specific aspects of functioning, such as social or life skills

6. Behaviour

6.1 No clinically important change in general behaviour

6.2 Average endpoint general behaviour score

6.3 Average change in general behaviour scores

6.4 No clinically important change in specific aspects of behaviour

6.5 Average endpoint specific aspects of behaviour

6.6 Average change in specific aspects of behaviour

7. Adverse effects - general and specific

7.1 Clinically important general adverse effects

7.2 Average endpoint general adverse effect score

7.3 Average change in general adverse effect scores

7.4 Clinically important specific adverse effects

7.5 Average endpoint specific adverse effects

7.6 Average change in specific adverse effects

7.7 Death - suicide and natural causes

8. Engagement with services

9. Satisfaction with treatment

9.1 Leaving the studies early

9.2 Recipient of care not satisfied with treatment

9.3 Recipient of care average satisfaction score

9.4 Recipient of care average change in satisfaction scores

9.5 Carer not satisfied with treatment

9.6 Carer average satisfaction score

9.7 Carer average change in satisfaction scores

10. Quality of life

10.1 No clinically important change in quality of life

10.2 Average endpoint quality of life score

10.3 Average change in quality of life scores

10.4 No clinically important change in specific aspects of quality of life

10.5 Average endpoint specific aspects of quality of life

10.6 Average change in specific aspects of quality of life

11. Economic outcomes

11.1 Direct costs

11.2 Indirect costs

*Primary outcomes.

We grouped outcomes into the short term (less than six months), medium term (7-12 months) and long term (over one year).

SEARCH METHODS FOR IDENTIFICATION OF STUDIES

See: Cochrane Schizophrenia Group methods used in reviews.

1. Electronic search for the 2007 review update.

We searched the Cochrane Schizophrenia Group Trials Register (May 2007) using the phrase:

[(rehabilit* or adl* or life?skill* or life?program* or social?skill* or social?program* or self?care skill* or self?care program* or living?skill* or living?program* or community?skill* or

community?program*) or ((daily and living) or (independent* and function*)) in title, abstract, index terms of REFERENCE] or [*life* or *living* in interventions of STUDY]

This register is compiled by systematic searches of major databases, hand searches and conference proceedings (see Group Module).

2. Details of previous searches

2.1 We searched the Cochrane Schizophrenia Group's Register (2003) using the phrase:

{
(life* or social* or self-care* or living* or community*) and (skill* or program*)} or (daily and living) or (independent* and function) or rehabilitation in title, abstract, index terms of REFERENCE] or [life skills in interventions of STUDY]

2.2 We searched the Cochrane Schizophrenia Group's Register of Trials (April 1998) using the phrase:

{{(life or social or self-care or living or community) and (skill* or program*)} or (daily and living) or (independent* and function*) or rehabilitation or #42=255 #42=or 311 or #42= 339]

2.3 The Cochrane Library (Issue 2, 1997)

We combined the Cochrane Schizophrenia Group's search strategy for chronic mental illness (see Group search strategy) with the phrase:

[and {(life or social or self-care or living or community) and (skill* or program*)} or (daily and living) or (independent* and function*) or rehabilitation or explode ACTIVITIES-OF-DAILY-LIVING/ all subheadings]

2.4 CINAHL (1982-04/1997)

We combined the Cochrane Schizophrenia Group's search strategy for controlled studies and chronic mental illness (see Group search strategy) with the phrase:

[and {(life or social or self-care or living or community) and (skill* or program*)} or (daily and living) or (independent* and function) or rehabilitation or explode ACTIVITIES-OF-DAILY-LIVING/ all topical subheadings / all age subheadings or explode COMMUNITY-LIVING/ all topical subheadings / all age subheadings or explode SELF-CARE/ all topical subheadings / all age subheadings]

2.5 EMBASE (1980-04/1997)

We combined the Cochrane Schizophrenia Group's search strategy for controlled studies and chronic mental illness (see Group search strategy) with the phrase:

[and {(life or social or self-care or living or community) and (skill* or program*)} or (daily and living) or (independent* and function*) or rehabilitation or explode DAILY LIFE ACTIVITY/ all subheadings]

2.6 MEDLINE (1966-04/1997)

We combined the Cochrane Schizophrenia Group's search strategy for controlled studies and chronic mental illness (see Group search strategy) with the phrase:

[and {(life or social or self-care or living or community) and (skill* or program*)} or (daily and living) or (independent* and function*) or rehabilitation or explode ACTIVITIES-OF-DAILY-LIVING/ all subheadings]

2.7 PsycLIT (1974 - 04/1997)

We combined the Cochrane Schizophrenia Group's search strategy for controlled studies and chronic mental illness (see Group search strategy) with the phrase:

[and {(life or social or self-care or living or community) and (skill* or program*)} or (daily and living) or (independent* and function*) or rehabilitation or SELF-CARE-SKILLS in DE or ACTIVITIES OF DAILY LIVING in DE or INDEPENDENT LIVING PROGRAMMES in DE]

3. Hand searches

We searched the following journals:

The American Journal of Occupational Therapy (1972- present)
The Australian Journal of Occupational Therapy (1980- present)
The British Journal of Occupational Therapy (1972-present)
Occupational Therapy Journal of Research (inception to present)
Occupational Therapy in Mental Health (inception to present)

4. Social Science Citations

We searched all selected trials on the Social Sciences Citation Database in order to identify additional reports of possibly relevant controlled trials.

5. Reference searching

We inspected the references of all identified studies for further studies.

METHODS OF THE REVIEW

1. Selection of trials

We (PT, MN) independently inspected all reports. We resolved any disagreement by discussion, and where there was still doubt, we acquired the full article for further inspection. Once the full articles were obtained, we independently decided whether the studies met the review criteria. If disagreement could not be resolved by discussion, we sought further information and these trials were added to the list of those awaiting assessment.

2. Assessment of methodological quality

We assessed the methodological quality of included studies using the criteria described in the Cochrane Handbook (Higgins 2006), which is based on the degree of allocation concealment. Poor concealment has been associated with overestimation of treatment effect (Schulz 1995). Category A includes studies in which allocation has been randomised and concealment is explicit.

Category B studies are those which have randomised allocation but in which concealment is not explicit. Category C studies are those in which allocation has neither been randomised nor concealed. Only trials that are stated to be randomised (categories A or B of the handbook) will be included in this review. The categories are defined below:

- A. Low risk of bias (adequate allocation concealment)
- B. Moderate risk of bias (some doubt about the results)
- C. High risk of bias (inadequate allocation concealment).

For the purpose of the analysis in this review, trials were included if they met the Cochrane Handbook criteria A or B. In addition, we completed the Risk of bias table for each included trial. In this we recorded our opinions of where each of the studies was vulnerable to bias.

3. Data extraction

PT independently extracted data from selected trials, while MN separately re-extracted information from two different samples (10%). When disputes arose we attempted to resolve these by discussion. When this was not possible and further information was necessary to resolve the dilemma, data were not entered and we added the trial to the list of those awaiting assessment.

4. Data synthesis

4.1 Data types

Outcomes were assessed using continuous (for example, changes on a behaviour scale), categorical (for example, one of three categories on a behaviour scale, such as 'little change', 'moderate change' or 'much change') or dichotomous (for example, either 'no important changes' or 'important changes' in a person's behaviour) measures. Currently RevMan does not support categorical data so, where possible, we changed these to binary outcomes in line with those listed above.

4.2 Incomplete data

We did not include trial outcomes if more than 40% of people were not reported in the final analysis.

4.3 Dichotomous - yes/no - data

We used an intention to treat analysis. On the condition that more than 60% of people completed the study, everyone allocated to the intervention were counted, whether they completed the follow up or not. It was assumed that those who dropped out had the negative outcome, with the exception of death. Where possible, efforts were made to convert outcome measures to dichotomous data. This can be done by identifying cut off points on rating scales and dividing participants accordingly into 'clinically improved' or 'not clinically improved'. If the authors of a study had used a predefined cut off point for determining clinical effectiveness, we used the authors definition where appropriate. Otherwise it was generally assumed that if there had been a 50% reduction in a scale-derived score, this could be considered as a clinically significant response (Leucht 2005a; Leucht 2005b). Similarly, a rating of 'at least much

improved' according to the Clinical Global Impression Scale (Guy 1970) was considered as a clinically significant response.

The relative risk (RR) and its 95% confidence interval (CI) was calculated based on the random effects model, as this takes into account any differences between studies even if there is no statistically significant heterogeneity. It has been shown that RR is more intuitive (Boissel 1999) than odds ratios and that odds ratios tend to be interpreted as RR by clinicians (Deeks 2000). This misinterpretation then leads to an overestimate of the impression of the effect. We inspected data to see if an analysis using a fixed effects model made any substantive difference in outcomes that were not statistically significantly heterogeneous. When the overall results were significant we calculated the number needed to treat (NNT) and the number-needed-to-harm (NNH) as the inverse of the risk difference.

4.4 Continuous data

4.4.1 Normal distribution

Continuous data on outcomes in trials relevant to mental health issues are often not normally distributed. To avoid the pitfall of applying parametric tests to non-parametric data we applied the following standards to continuous final value endpoint 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 zero, the standard deviation, when multiplied by two, should be less than the mean (otherwise the mean is unlikely to be an appropriate measure of the centre of the distribution (Altman 1996); In cases with data that are greater than the mean they were entered into 'Other data' table as skewed data. If a scale starts from a positive value (such as PANSS, which can have values from 30 to 210) the calculation described above in (b) should be modified to take the scale starting point into account. In these cases skewness is present if $2SD > (S - S_{min})$, where S is the mean score and S_{min} is the minimum score. We reported non-normally distributed data (skewed) in the 'other data types' tables.

For change data (mean change from baseline on a rating scale) it is impossible to tell whether data are non-normally distributed (skewed) or not, unless individual patient data are available. After consulting the ALLSTAT electronic statistics mailing list, we entered change data in RevMan analyses and reported the finding in the text to summarise available information. In doing this, we assumed either that data were not skewed or that the analysis could cope with the unknown degree of skew.

4.4.2 Final endpoint value versus change data

Where both final endpoint data and change data were available for the same outcome category, we only presented final endpoint data. We acknowledge that by doing this much of the published change data may be excluded, but argue that endpoint data is more clinically relevant and that if change data were to be presented along with endpoint data, it would be given undeserved equal prominence. We are contacting authors of studies reporting only change data for endpoint figures.

4.4.3 Summary statistic

For continuous outcomes we estimated a weighted mean difference (WMD) between groups. WMDs were again based on the random effects model, as this takes into account any differences between studies even if there is no statistically significant heterogeneity. We combined both endpoint data and change data in the analysis, because there is no principal statistical reason why endpoint and change data should measure different effects (Higgins 2005). When standard errors instead of standard deviations (SD) were presented, we converted the former to standard deviations. If both were missing we estimated SDs from p-values or used the average SD of the other studies (Furukawa 2006)

4.5 Rating scales

A wide range of instruments are available to measure mental health outcomes. These instruments vary in quality and many are not valid, and are known to be subject to bias in trials of treatments for schizophrenia (Marshall 2000). Therefore continuous data from rating scales were included only if the measuring instrument had been described in a peer-reviewed journal.

4.6 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 intraclass 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 coefficients and relevant data documented in the report, we synthesised these with other studies using the generic inverse variance technique.

5. Investigation for heterogeneity

Firstly, we considered all the included studies within any comparison to judge for clinical heterogeneity. Then we visually

inspected graphs to investigate the possibility of statistical heterogeneity. We supplemented this by using primarily the I-squared statistic. This provides an estimate of the percentage of variability due to heterogeneity rather than chance alone. Where the I-squared estimate was greater than or equal to 50%, we interpreted this as indicating the presence of considerable levels of heterogeneity (Higgins 2003). When heterogeneous results were found, we investigated the reasons for this; where heterogeneity substantially altered the results these data were not summated, but presented separately and reasons for heterogeneity investigated.

6. Addressing publication bias

We entered data from all identified and selected trials into a funnel graph (trial effect versus trial size) in an attempt to investigate the likelihood of overt publication bias (Egger 1997).

7. Sensitivity analyses

We investigated the sensitivity of the results of only the primary outcomes to grouping drugs into broad families such as typical and atypical. In addition we investigated whether one particular antipsychotic was of value for stabilising weight in a healthy range.

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 experimental treatment.

DESCRIPTION OF STUDIES

1. Excluded studies

We excluded 40 studies. Five studies were not randomised. Three reports were review articles. The other 32 studies were randomised (30) or quasi-randomised (2). In each, the experimental groups were allocated to a programme that had some elements of life skills but also incorporated other training interventions, of which social skills were frequently used. One study (Duncombe 2004) did compare cooking skills lessons between two settings, both in the clinic and the patient's home. The results between the two settings were presented and indicated no significant difference. However, we felt that the authors should compare the change in skills in each setting with the control group rather than comparing skills score in each setting. Another study (Mosher 1978) compared life-skills programmes with standard care but the experimental intervention took place in a community setting, whilst the standard care group were within a hospital setting. We felt that the allocation to hospital or community would confound any evaluation of life skills.

2. Awaiting assessment

No studies are awaiting assessment.

3. Ongoing

We found no ongoing studies.

4. Included studies

We included four randomised studies (Brown 1983; Campbell 1983; Patterson 2003; Patterson 2006) with a total of 318 participants.

4.1 Length of trials

Most trials were undertaken for no longer than three months (Brown 1983 seven weeks, Campbell 1983 12 weeks, Patterson 2003 12 weeks). The longest trial (Patterson 2006) lasted for 24 weeks.

4.2 Participants

All participants were people with a chronic mental illness mostly with schizophrenia and schizophrenia like disorders. One of the studies randomised only men (Brown 1983), the others included both sexes. The mean age for one study was 35 years (Brown 1983) and for the others three studies the mean age was 45-50 years (Campbell 1983; Patterson 2003; Patterson 2006). Patterson 2003 and Patterson 2006 both stated that the assessors were blinded to the participant's treatment allocation, whilst Brown 1983 and Campbell 1983 did not report if blinding was attempted.

4.3 Setting

Three studies used a hospital setting (Brown 1983; Patterson 2003; Patterson 2006) and in Campbell 1983 the participants attended a day hospital.

4.4 Interventions

In Brown 1983 and Campbell 1983 the life skills programme consisted of a mixture of interpersonal skills, grooming and personal hygiene, stress management, nutrition, finance, and time management skills. The comparison groups were 'traditional rehabilitation' involving recreation, art and occupational therapy. The intensity of input was four hours per day, five days a week for seven weeks (Brown 1983), or four weekly sessions of an hour each for twelve weeks (Campbell 1983). For Patterson's studies both in 2003 and 2006 life skills were trained via the program entitled "Functional Adaptation Training (FAST)." This program composed of six areas of medication management skills, social skills, communication skills, organization and planning skills, transportation skills and financial management skills. The control group received treatment as usual (Patterson 2003) or attention control condition which provided group support for participants (Patterson 2006). In Patterson 2003 the FAST was provided 120 minutes 24 semi-weekly, while in Patterson 2006 it was provided 120 minutes weekly for 24 weeks.

4.5 Outcomes scales

4.5.1 Mental state

4.5.1.1 Positive and Negative Syndromes Scale - PANSS (Kay 1986)

This scale is used for measuring symptom reduction of patients with schizophrenia. The 30-item PANSS was conceived as an operationalized, drug-sensitive instrument that provides balanced representation of positive and negative symptoms and gauges their relationship to one another and to global psychopathology. It thus

constitutes four scales measuring positive and negative syndromes, their differential and general severity of illness. The name refers to the two types of symptoms in schizophrenia as defined by the American Psychiatric Association: positive symptoms, which refer to an excess or distortion of normal functions, and negative symptoms, which represent a diminution or loss of normal functions. High scores suggest greater psychopathology. Patterson 2003 and Patterson 2006 reported data from this scale.

PANSS positive syndrome range from 7-48

PANSS negative syndrome range from 7-48

PANSS general psychopathology range from 16-96

4.5.1.2 Hamilton Rating Scale for Depression - HAMD (rated by therapist) (Hamilton 1967)

This instrument is designed to be used only with patients already diagnosed as suffering from affective disorder of a depressive type. It is used for quantifying the results of an interview, and its value depends entirely on the skill of the interviewer in eliciting the necessary information. The scale contains 17 variables measured on either a five-point or a three-point rating scale, the latter being used where quantification of the variable is either difficult or impossible. Among the variables are: depressed mood; suicide; work and loss of interest; retardation; agitation; gastro-intestinal symptoms; general somatic symptoms; hypochondriasis; loss of insight and loss of weight. It is useful to have two raters independently scoring a patient at the same interview. The scores of the patient are obtained by summing the scores of the two physicians. A score of 11 is generally regarded as indicative of a diagnosis of mild depression, 14-17 mild to moderate depression and >17 moderate to severe depression. Patterson 2003 and Patterson 2006 reported data from this scale.

4.5.1.3 Zung Self Rating Depression Scale - (self-rated) (Zung 1965)

The Zung Self-Rating Depression Scale is a 20-item self-rated scale that is widely used as a screening tool, covering affective, psychological and somatic symptoms associated with depression. The questionnaire takes approximately 10 minutes to complete and items are framed in terms of positive and negative statements. It can be effectively used in a variety of settings, including primary care, psychiatric clinics, drug trials and various research situations. Each item is scored on a Likert scale ranging from one to four. Most people with depression score between 50 and 69, while a score of 70 and above indicates severe depression. Brown 1983 reported data from this scale.

4.5.1.4 Profile of Moods State - POMS (self rated) (McNair 1971)

This instrument was designed to measure mood states in psychiatric outpatients and as a method for assessing change in such people. It has been used in many drug evaluation studies. Mood reactions are to be reported for a specific period of time, such as the previous week. This helps distinguish mood states from enduring personality traits. It contains 65 items, takes about five minutes

to complete and is designed for use with adults. Brown 1983 reported data from this scale.

4.5.1.5 Future Outlook Inventory - FOI (Gunn 1970)

This self-administered test measures the future outlook of hospitalised psychiatric patients and is designed for use in psychiatric diagnosis, rehabilitation, and prediction of successful return to the community. It contains 57 items and is designed for use with adults. Brown 1983 reported data from this scale.

4.5.2 General functioning/Life skills

4.5.2.1 UCSD Performance-based Skills Assessment - UPSA (Patterson 2001a)

This is the measure of everyday functioning for severely mentally ill adults. It requires participants to role-play a variety of complex situations including management of finances, social and communication skills, transportation, and household chores. The scores are given in each functional area, and the sum of scores from each domain is the total score. High scores indicate better functioning. Patterson 2006 reported data from this scale.

4.5.2.2 Social Skills Performance Assessment - SSPA (Patterson 2001b)

This is the measure of social and communication skills of older patient with schizophrenia. It assesses through the use short role play scenarios that simulate interactions between a neighbour and a landlord. For each role play participants are rated from one (low) to five (high) on a number of domains including interest, fluency, clarity, affect, and social appropriateness. An overall score is obtained by summing the scores from each of the domain assessed (range from 1-48). High scores indicate higher skills. Patterson 2006 reported data from this scale.

4.5.2.3 The Medication Management Abilities Assessment - MMAA (Patterson 2002)

This measure aims to assess the ability to independently manage the medication of participants. Participants are given mock medication bottles that are labelled with direction for use. Participants are then instructed to sort the pills and describe to the interviewer how and when they should take them throughout the day. Scoring will be given based on the accuracy of the participant's counting of (a) pill type, (b) number of times per day the prescribed dose is to be taken, (c) number of capsules taken each time, and (d) whether they are taken with or without food as directed. Each deviation from the prescribed regimen is scored as an error (total score = 0-25). Higher scores indicate worse functioning. Patterson 2006 reported data from this scale.

4.5.3 Quality of Life

4.5.3.1 Quality of Well-Being Scale - QWB (Anderson 1989)

The QWB scale was developed to evaluate health related quality of life. It comprised of four scales that focus on the physical impact of an illness. The interview will take an average of 12 minutes to complete. It utilizes a 6-day follow-back format. A single index score, range from 0-1.0 is obtained. Higher scores indicate better

health-related quality of well-being. Patterson 2003 reported data from this scale. Also, Patterson 2006 did evaluate QWB but used the full score, rather than the QWB index, that ranged from 0-100.

4.6 Missing outcomes

Brown 1983 did evaluate life skills but used an instrument that was in a developmental phase (Life Skills Inventory) and no subsequent information about this tool has been found. We therefore decided not to present those data (see 'Methods' section). In addition, the Hamilton Rating Scale for Depression was rated by a therapist so data are also not reported in this review (see 'Methods' section).

METHODOLOGICAL QUALITY

1. Randomisation

All studies were randomly assigned. However, three studies did not describe how allocation to intervention was undertaken (Brown 1983; Campbell 1983; Patterson 2006). The Patterson 2003 study was a cluster randomised trial whereby clinics were randomised to either life skills programmes or standard care, and authors reported that outcomes were adjusted to take account of the clustering effect. Allocation concealment was not tested in any of the studies.

2. Blinding

Two studies did not report if blinding was attempted (Brown 1983; Campbell 1983). The others two studies (Patterson 2003; Patterson 2006) clearly stated that the assessors were blinded to the treatment condition of the participants. None of the included trials tested the adequacy of the blindness of those rating outcomes.

3. Follow-Up

Three people left Brown 1983; two from the experimental group and one from the control group. No explanation is given for these losses; the authors simply state that the responses from the dropouts were not used in the data analysis. All participants remained in the Campbell 1983 study. Eight participants left the experimental group (Patterson 2003) and were not included in the analysis. However, the authors did examine baseline values on demographic variables and treatment outcome related variables between completers versus drop-out. No significant differences were reported between the two groups suggesting that attrition did not bias the study. In the Patterson 2006 study, 18 participants were withdrawn from the experimental group for various reasons, being moved from board and care (n=8), hospitalised/medical (n=3), schedule conflict (n=2), lost contact (n=2) and refused intervention (n=3); therefore only 106 received life skills intervention and seven were lost to follow-up. Ninety nine were eligible for analysis but only 82 were included. In the control group, 14 participants were excluded due to being moved from board and care (n=4), hospitalised/medical (n=3), schedule conflict (n=1), lost contact (n=2), refused intervention (n=2), jailed (n=1) and lack of transportation (n=1). Therefore only 102 received regular intervention

but six were lost to follow-up. Ninety six were eligible for analysis but only 76 were included. The inadequate reporting of randomisation, possible lack of double blindness for these outcomes and unclear reasons for lost to follow up would suggest that estimates of effect are prone to exaggeration (Moher 1998).

RESULTS

1. The search

We found 1050 citations using the search strategy. The vast majority were not relevant to this review and are not listed in detail. Twenty-nine citations, relating to 23 studies were acquired as they mentioned life skills or other similar types of interventions. For the 2007 update we found two additional studies to include in this review, now with a total of four controlled trials relating to life skills.

2. COMPARISON 1: LIFE SKILLS PROGRAMME versus STANDARD CARE

2.1 Life Skills

2.1.1 Life skills: No important change in specific skills

We found all outcomes by Campbell 1983 relating to acquisition of skills, household activity skills, kitchen skills, laundry skills and self care were not significantly different between intervention groups. These are highly specific skills from a very small study (n=10) and are presented in order to generate hypotheses.

2.1.2 Life skills: UPSA endpoint score at 24 week

No significant differences were found between life skills and the control group at endpoint (24 weeks) (Patterson 2003, n= 32, WMD -1.10 CI -7.8 to 5.6).

2.2 Leaving the study early

In Brown 1983, three people left the study early, two from the experimental group and one from the control group. Eight people dropped out in Patterson 2003, four from each group, and overall no significant differences were found between groups (n=60, 2 RCTs, RR 1.16 CI 0.4 to 3.4).

2.3 Mental state

2.3.1 PANSS score

Patterson 2003 measures positive and negative symptoms at 24 week using the PANSS scale. We found that life skills did not significantly improve the psychopathology of those with serious mental illness (n=38, WMD -0.80 CI -4.4 to 2.8 for positive symptom; n=38 WMD 1.90 CI -1.8 to 5.6 for negative symptom; n=38, WMD 0.00 CI -3.1 to 3.1 for general psychopathology).

2.3.2 Depression - POMS/Zung

Brown 1983 reported data from the Profile of Mood Scale which contained wide standard deviations and data were not significantly different between intervention groups (n=25, WMD -5.99 CI -16.0 to 4.0). Brown 1983 also reported data from the Zung scale and again data contained wide standard deviations, and we found

no significant difference between groups (n=25, WMD -7.17 CI -18.7 to 4.3). Patterson 2003 reported endpoint data for depression using the HAM-D scale but data were skewed (wide SD) and are reported in other data tables.

2.3.3 Prediction of successful return to community

Brown 1983 measured the prediction of a successful return to the community after life skills training. We found no significant differences between those who received training and those who did not (n=25, WMD -10.36 CI -34.9 to 14.2).

2.4 Quality of life

We found data were not significantly different for quality of well-being after 24 weeks of life skills interventions compared with control (Patterson 2003, n=32, WMD -0.02 CI -0.1 to 0.03).

3. COMPARISON 2: LIFE SKILLS PROGRAMME versus ATTENTION CONTROL (support group)

3.1 Life skills

3.1.1 Life skills: everyday functioning

Patterson 2006 measured the six areas of life skills e.g. management skills, social skills, communication skills, organization and planning skills, transportation skills and financial management skills. We found no significant differences between those who attended skills training and those who received support group (n=158, WMD -2.50 CI -8.9 to 3.9).

3.1.2 Life skills: Medication management ability

Medication management ability, although not a life skill by itself, has been considered part of the life functioning of those with chronic mental illness. Patterson 2006 reported data for this outcome however data were skewed and are reported in other data tables.

3.1.3 Life skills: Social skill performance

In this review we did not review the programme that evaluated social skills, except for the life skills programme with related interpersonal skills. The FAST model is one of these and we found no significant difference in social skills performance (Patterson 2006, n=158, WMD -0.90 CI -3.4 to 1.6) between groups.

3.2 Mental state

3.2.1 Mental state: change in psychopathology

In Patterson 2006, we found no significant difference for PANSS total score (n=158, WMD 2.70 CI -4.8 to 10.2).

3.2.2 Mental state: HAM-D depression

Patterson 2006 reported data from the HAM-D scale but data were too skewed and are reported in other data tables.

3.3 Quality of life

Life skills programmes did not significantly improve the quality of well-being for participants receiving life skills training (Patterson 2006, n=158, WMD 0.90 CI -3.1 to 4.9) compared with the support group.

3.4 Missing outcomes

Neither study evaluated global state (relapse rate), satisfaction with care or economic outcomes.

DISCUSSION

1. General

We were only able to include four studies in this review. Two studies (Brown 1983; Campbell 1983) were small with sample sizes of less than 30 participants, and both were of short term duration. Patterson 2003 used a cluster designed randomised trial involving four centres with a study population of just 10 participants for each centre. The chance of finding real treatment effects from such small studies is unlikely. All studies were stated to be randomised, but two (Brown 1983; Campbell 1983) did not describe how allocation to intervention groups was undertaken and we don't know if blinding was used. The other two studies (Patterson 2003; Patterson 2006) were randomised and reported that assessors were blind to treatment allocation. However, the success of allocation concealment was not tested nor the success of assessors remaining blind to treatment groups. It is possible that the studies were affected by performance and detection bias.

All of the included studies reported the intervention techniques adequately. Two studies used life skills programmes (Brown 1983; Campbell 1983) while (Patterson 2003 and Patterson 2006) taught life skills plus related interpersonal skills. A few of the excluded studies could not be included because they taught life skills as part of social skills training (e.g. Glynn 2002). We felt that the authors focused more on social skills training, medication management and problem solving skills which was not the main purpose of this review (please see detail in the characteristics of excluded studies).

2. Limited data

The studies often used different assessment scales and we were unable to pool the divergent outcome data making the detection of potential treatment effects more remote.

3. COMPARISON 1: LIFE SKILLS PROGRAMME versus STANDARD CARE

3.1 Life skills: No important change in specific skills/global skills
Overall there were no significant differences between life skills programmes and standard care. There is still a need for large randomised controlled trials to investigate the effects of life skills programmes.

3.2 Leaving the study early

Three people left the study early in Brown 1983 without reasons given by the authors. Eight participants dropped out in Patterson 2003. None of the studies used an intention-to-treat analysis. However, Patterson 2003 tried to test the differences of the baseline data between two groups to confirm that the attrition did not affect the results.

3.3 Mental state

All data were under-powered and none of the measures of mental state showed that life skills programmes were superior to standard care, albeit with an inadequate sample size to detect a treatment effect. This is unfortunate because the negative symptoms of psychopathology were measured and these studies could have informed clinicians whether such treatment would be helpful for the negative symptoms which are often so unresponsive to drug interventions.

3.4 Quality of life

Only one study tested the effect of life skills programmes on quality of well-being compared with standard care. No clear benefits were found. There is a need for a programme tailored to improve the quality of well-being of people with chronic mental illnesses.

3. COMPARISON 2: LIFE SKILLS PROGRAMME versus ATTENTION CONTROL (support group)

Patterson 2006 compares life skills with those who received attention control i.e. support groups to encourage members to talk and solve their problems.

3.1 Life skills: everyday functioning/medication and social skills

From the limited data available we found no evidence to suggest that life skills programmes improved everyday functioning. The life skills programme included enhancing organisational and planning skills, transportation skills, financial management, medication management, social skills and improving communication skills.

3.2 General functioning

Social skills were not improved in the life skills group compared with the control group. From this limited evidence of a single study, the data does not indicate that the more structured approach of life skills training confers greater benefits than the support group problem solving techniques.

3.3 Mental state

Only PANSS scores were available to assess changes in psychopathology and we found that participants receiving life skills training did not elicit any significant benefit compared with the support group.

3.4 Quality of life

There appears to be no difference in the quality of life experienced between groups after 26 weeks of life skills training or support group care when assessed with the Quality of Well-being scale.

4. Were the selection criteria too restrictive?

Life skills training is a common feature of the long-term rehabilitation of people with serious mental illnesses. Although this type of training may be combined with other programmes such as social skills training, it is distinctive and, we feel, still worthy of evaluation in its own right. It is a relatively simple type of treatment, with great potential benefit for those who are so profoundly disabled making normal community life nearly impossible. We

found many good studies that tried to test the effect of life skills but some did not clearly distinguish between those with social skills or problem solving skills. However, these four studies provide some meaningful data for therapists to develop a more effective programme and more well design studies to measure specific outcomes (see implications for practice).

AUTHORS' CONCLUSIONS

Implications for practice

1. People with serious mental illness

Considering that there is severely limited evidence that life skills training programmes are of value to those with serious mental illnesses, their advocates would be well justified in calling for a randomised controlled trial in this area. Until such time as any evidence of benefit is available it is questionable whether recipients of care should be put under pressure to attend such programmes.

2. Clinicians

Many healthcare professionals spend significant parts of their jobs training people with chronic mental health problems in the area of life skills. This review shows that there is no evidence indicating that such programmes are helpful or harmful to this vulnerable group. The healthcare profession is responsible for a situation where an almost unevaluated and expensive treatment is provided for a vulnerable population.

3. Managers/policy makers

It is likely that short-sighted managers or policy makers would see life skills programmes as ripe for closure. Nevertheless, others may see this as an ideal opportunity for evaluation and give full support to those wishing to undertake such work.

Implications for research

1. General

From the limited data available life skills appears to provide no benefit for people with chronic mental health problems. If there are benefits to be gained from life skills then larger trials of adequate power are needed to determine its value for such people.

2. Randomisation and blinding

If readers are to be assured that selection bias has been eliminated then the process of randomisation should be clearly described. Blinding in this area is problematic if the assessor is also implementing the intervention, as would appear to be the case. We feel it would be possible to design a study with simple pragmatic and

objective outcomes that could be recorded by those not so closely involved in the intervention under evaluation.

3. Outcomes

Scale data, when derived from validated scales, is difficult to interpret, but it is impossible to decipher with any confidence data produced by a non-validated scale. We would suggest that if a trial is to be of use, dichotomous data are most valuable to both the clinician and recipient of care. These data should relate to the desired life skills as well as mental state, satisfaction and costs.

4. Reporting of data

Clear presentation of raw dichotomous data assists reviews such as this. If continuous data are to be used they should be presented with a mean, standard deviation and the total numbers from which they were derived. Inexact 'p' values are unhelpful.

POTENTIAL CONFLICT OF INTEREST

Patraporn Tungpunkom none known.

Maggie Nicol a professor of occupational therapy who undertakes life skills training.

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* Indicates the major publication for the study

TABLES

Characteristics of included studies

Study	Brown 1983
Methods	Allocation: “randomly assigned” - no further details. Blindness: not stated. Duration: 7 weeks.

Characteristics of included studies (Continued)

	Setting: hospital.
Participants	Diagnosis: schizophrenia (DSM-III). N=28. Age: mean 35 years. Sex: all male. History: "chronic", 97% >4 admissions. Race: 15% ethnic minority. Excluded: substance abuse.
Interventions	1. Interpersonal and instrumental skills group: (20 hrs/week) interpersonal communication skills, nutrition, health, finance, time management, utilization of community resource; groups <9, leader participant ratio 1:4. N=14. 2. Standard VA programme: (20 hrs/week) recreation, art, occupation therapy. N=14.
Outcomes	Leaving the study early. Attitude/affective measures (FOI, POMS, SAS, Zung Self Rating Depression Scale). Unable to use - Coping with community living situations (LSI - unpublished scale). Mood (HRSD - not rated independently).
Notes	Reasons for withdrawal not given (N=3). Not "intention-to-treat" analysis.
Allocation concealment	B – Unclear

Study **Campbell 1983**

Methods	Allocation: "randomly assigned" - no further details. Blindness: not stated. Duration: 12 weeks. Setting: day hospital.
Participants	Diagnosis: schizophrenia (Feighner). N=10. Age: mean ~47 years. Sex: 6 M, 4 F. History: "chronic", mean length ill ~ 22 years. .
Interventions	1. A self care, shopping, laundry, household & kitchen duties programme; 4 one hour sessions/week. N=6. 2. Standard day hospital programme. N=4.
Outcomes	Kitchen skills. Self care skills. Laundry skills. Household skills. All assessed by the Royal Edinburgh Occupational Therapy Assessment Form.
Notes	No details of the standard day hospital programme given.
Allocation concealment	B – Unclear

Study **Patterson 2003**

Methods	Allocation: "randomly assigned" - four out of eight facilities were randomly chosen into study. Ten patients were recruited from each site and two facilities were randomly assigned to either experimental or control group. Blindness: assessors were blinded to subjects' treatment condition.
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Characteristics of included studies (Continued)

	Duration: 12 weeks and follow-up 12 weeks. Setting: board and care facility in community.
Participants	Diagnosis: schizophrenia and schizoaffective disorder (DSM-IV). N=40* Age: at least 40 (mean age ~ 45 years). Sex: male and female. History: long standing psychotic disorders. Excluded: dementia, serious suicidal risk.
Interventions	1. Functional Adaptation Training (FAST); a 120 minutes 24 semi-weekly intervention composed of 6 areas of everyday functioning: i) medication management, ii) social skills, iii) communication skills, iv) organization and planning, v) transportation, and vi) financial management. N=20. 2. Treatment as usual. N=20.
Outcomes	Functioning. UPSA, SSPA, MMAA. Mental state: PANSS, HAM-D, QWB.
Notes	Not intent-to-treat analysis. *8 were dropped out and were excluded from analysis.
Allocation concealment	B – Unclear

Study **Patterson 2006**

Methods	Allocation: “randomly assigned” . Blindness: assessors were blinded to subjects’ treatment condition. Duration: 24 weeks. Setting: board and care facility in community.
Participants	Diagnosis: schizophrenia and schizoaffective disorder (DSM-IV). N=240* (124/116). Age: at least 40 (mean age ~ 50 years). Sex: male and female. History: no involvement in other psychosocial study or drug research prior or at follow-up period. Excluded: dementia, serious suicidal risk.
Interventions	1. Functional Adaptation Training (FAST) composed of 6 areas of everyday functioning: i) medication management, ii) social skills, iii) communication skills, iv) organization and planning, v) transportation, and vi) financial management; weekly 120 min sessions provided for 24 weeks. N=124. 2. Attention control condition: a support group session that provided a supportive environment for addressing personal problems. The first hour was provided a chance for freely discussed issue important to the patients and therapist then identified common themes; second hour therapist facilitated discussion around theme designed for that session, solution was emerged by group members discussion. AC were provided 120 min/weekly for 24 weeks. N=116.
Outcomes	Functioning. UPSA, SSPA, MMAA. Mental state: PANSS, HAM-D, QWB.
Notes	Intent-to-treat analysis * Eligible patients were 465. Two hundred and nineteen were excluded from random assignment to study groups due to did not meet inclusion criteria (n=144), refused to participate (n=67) and other (n=8). 240 were included in random assignment to study groups: 124 for experimental group; 116 for control group; 18 were withdrew from the experiment group due to moved from B & C (n=8), hospitalised/medical (n=3), schedule conflict (n=2), lost contact (n=2) and refused intervention (n=3), therefore only 106 received intervention but 7 lost of follow-up. 99 were eligible to analyse but only 82 were completer. 14 were excluded from the control group due to moved from B & C (n=4), hospitalised/medical (n=3), schedule conflict (n=1), lost contact (n=2),refused intervention (n=2); jailed (n=1),and lack of transportation(n=1), therefore only 102 received regular intervention but 6 were lost of follow-up. 96 were eligible for analysis but only 76 were completer.

Allocation concealment B – Unclear

General

DSM-IV- Diagnostic Statistical Manual-Version 4.

DSM-III - Diagnostic Statistical Manual - version 3.

VA - Veterans Administration

Scales

FOI - Future Outlook inventory

HRSD - Hamilton Rating Scale for Depression

LSI - Life Skills Inventory

POMS - Profile of Moods Scale

SAS - Social Anxiety Scale

PANSS - Positive and Negative Symptom Scale

QWB - Quality of Well-being scale

UPSA - The UCSD Performance-based Skills Assessment

SSPA - Social Skills Performance Assessment

MMAA - Medication Management Abilities Assessment

Characteristics of excluded studies

Study	Reason for exclusion
Armstrong 1991	Allocation: “randomly assigned”, groups unbalanced, only ‘completer’ data reported, original numbers unclear. Participants: people with chronic mental illness. Interventions: life skills programme versus supportive psychotherapeutic milieu therapy. Dr Armstrong contacted, data destroyed and denominators unknown.
Burns 1993	Allocation: randomised. Participants: “general psychiatric patients”. Interventions: home-based care versus admission to hospital, not life skills programme.
Chen X, Zhang Y2	Allocation: randomised. Participants: people with schizophrenia. Intervention: skills training, but not living skills training, including entertainment activities, e.g. singing, dancing, ball games etc; psychoeducation; rehabilitation activities, e.g. cleaning, cutting grass, planting vegetables etc.
Dobson 1995	Allocation: randomised. Participants: people with schizophrenia. Interventions: social skills training versus social milieu therapy, not life skills programme.
Drake 1994	Allocation: not randomised, comparison of two day-centre programmes in different geographical areas.
Du 2005	Allocation: randomised. Participants: people with schizophrenia. Intervention: psychoeducation not life skills; included 3 stages i) community independent living skills training (more likely psychoeducation: training on basic knowledge of schizophrenia, related stress to community re-entry, social skills and how to cope with stress; ii) medication management, trained to recognise the importance of taking medication and the side effects; iii) self monitoring- early warning sign recognition, how to cope with chronic symptoms.
Duncombe 2004	Allocation: randomised. Participants: people with non paranoid schizophrenia and schizoaffective disorders. Intervention: 4 cooking lesson provided at clinic and patients’ home; author compared the results of cooking skills between two settings but no control group data presented.
Feifei 1994	Allocation: randomised. Participants: people with schizophrenia. Interventions: life skills training and a token economy.
Garety 1994	Allocation: “non-random allocation”.

Glynn 2002	Allocation: randomised. Participants: people with schizophrenia and schizoaffective disorder. Interventions: behaviorally orientated clinic social skills training with in vivo amplified skills training; part of the program reported successful living skills module but did not explain clearly how it focused on medication management, social skills and problem solving rather than life skills per se.
Goldberg 1994	Allocation: not randomised, review.
Hayes 1991	Allocation: randomised. Participants: people with schizophrenia. Interventions: activity (constructional skills) therapy versus social skills training, not life skills programme, no standard care group.
Hoult 1983	Allocation: randomised. Participants: people with schizophrenia. Interventions: community orientated care versus hospital orientated care - hospital diversion programme, not life skills programme.
Ikebuchi 1995	Allocation: not randomised, case series.
Jerrell 1995	Allocation: randomised. Participants: people with severe mental illness and substance abuse. Interventions: behavioural skills training versus case management versus 12 step recovery, not life skills programme.
Jin 1994	Allocation: randomised. Participants: people with schizophrenia. Interventions: standard care versus open door policy, not life skills programme.
Johnson 1965	Allocation: randomised. Participants: people with schizophrenia. Interventions: community residential treatment programme (not life skills programme) versus standard community mental health center in-patient programme.
Lafave 1996	Allocation: randomised. Participants: people with schizophrenia. Interventions: wide range of interventions offered including life skills.
Li 1994	Allocation: randomised. Participants: people with schizophrenia. Interventions: life skills with positive reinforcement; the reward system effected to skills rather than the programme itself. Outcomes: no usable data (results cannot be separated).
Li 2002	Allocation: randomised. Participants: people with schizophrenia. Intervention: community based rehabilitation intervention, not living skills training.
Ma 2001	Allocation: randomised. Participants: people with schizophrenia. Intervention: occupational rehabilitation, not life skills.
Ma 2003	Allocation: randomised. Participants: people with schizophrenia. Interventions: including 3 stages: i) community independent living skills training, ii) medication management, iii) self monitoring and early warning sign recognition; results cannot be separated (except, there is DAS subscale score on social functioning, family functioning, employment, independent living).
May 1985	Allocation: randomised. Participants: people with chronic mental illness. Intervention: not everyday life skills training but rather focussed more on social skills; included 3 areas: i) interpersonal communication; ii) purpose in life problem solving; and iii) physical fitness.

Mosher 1978	Allocation: by availability of bed in experimental or control units, quasi-randomised. Participants: people with schizophrenia. Interventions: community residential treatment (including life skills), 1:1 staff:client ratio versus standard inpatient care, life skills programme not randomised within the same treatment setting.
Muijen 1992	Allocation: randomised. Participants: people with serious mental illnesses. Interventions: home-based daily living programme versus out-patient care, the daily living programme involved life skills support but other interventions set in a comprehensive community support package.
Nienhuis 1994	Allocation: randomised. Participants: mixture of diagnoses in need of admission. Interventions: day hospital admission diversion programme versus standard admission, not life skills programme.
Otero 1993	Allocation: not randomised, review.
Paul 1977	Allocation: randomised. Participants: people with serious mental illnesses. Intervention: milieu therapy versus social learning therapy versus standard care, not life skills programme.
Penn 1996	Allocation: not randomised, review.
Scott 1995	Allocation: not randomised, review.
Sellwood 1995	Allocation: randomised. Participants: people with schizophrenia. Interventions: wide range of interventions, not specifically life skills.
Stein 1975	Allocation: randomised. Participants: people with schizophrenia. Interventions: wide range of interventions, including life skills.
Tao 2002	Allocation: quasi randomisation (according to hospital admission number). Participants: people with schizophrenia. Intervention: including 4 components: 1)+2) independent living skills (personal hygiene, cooking, washing etc); 3) entertainment training, e.g. singing contest, broadcast exercise etc; 4) returning to society training, patients were allowed to go home alone for a day over the weekend, or allowed to go shopping for a day. Outcomes: no usable data (results cannot be separated).
Wang 2002	Allocation: randomised (no further detail given) Participants: chronic schizophrenia patients Intervention: independent living skills training through demonstration and token economy method. The results cannot be separated between the skills training and the reward effect.
Weng 2002	Allocation: randomised. Participants: people with schizophrenia. Intervention: rehabilitation training not living skills training, including social skills training, employment skills training and token economy.
Whetstone 1985	Allocation: randomised. Participants: people with schizophrenia. Interventions: social dramatics emphasising social skills versus standard care, non-social life skills functioning not investigated.
Wiersma 1991	Allocation: randomised. Participants: people with schizophrenia. Interventions: day hospital versus standard admission, hospital diversion programme, not life skills programme.
You 2005	Allocation: randomised. Participants: people with schizophrenia. Interventions: rehabilitation including elements of i) independent living skills training, e.g. washing, cooking, gardening, personal hygiene, ii) 30 minutes exercise, iii) watch news and comedy on TV, iv) learn a new song every week, v) group games and story telling section, vi) football games, and vii) social skills training.

Characteristics of excluded studies (Continued)

	Outcomes: no usable data (results cannot be separated).
Zhang 2001	Allocation: not stated. Participants: people with schizophrenia. Intervention: 4 components: 1) independent living skills training (washing, dressing, personal hygiene etc); 2) social skills training (communication skills); 3) psychoeducation 4) family intervention. Outcomes: no usable data (results cannot be separated).
Zhang 2004	Allocation: randomised. Participants: people with schizophrenia. Intervention: 3 components: 1) independent living skills trading (its in fact more like psychoeducation, involving the education of schizophrenia as an illness, it's symptoms and the significance and importance of independent living skill training, but no specific training was stated); 2) medication management; 3) self-monitoring of symptoms and relapse signs. Outcomes: no usable data (results cannot be separated).

ANALYSES

Comparison 01. LIFE SKILLS PROGRAMME vs STANDARD CARE

Outcome title	No. of studies	No. of participants	Statistical method	Effect size
01 Life skills: 1. No important change in specific skills			Relative Risk (Random) 95% CI	Subtotals only
02 Life skills: 2. Endpoint score (UPSA, high score=better)	1	32	Weighted Mean Difference (Random) 95% CI	-1.10 [-7.82, 5.62]
03 Leaving the study early	2	60	Relative Risk (Random) 95% CI	1.16 [0.40, 3.36]
04 Mental state: 1. Endpoint score at 24 wks (PANSS positive syndrome, high score=worse)	1	32	Weighted Mean Difference (Random) 95% CI	-0.80 [-4.38, 2.78]
05 Mental state: 2. Endpoint score at 24 week (PANSS negative syndrome; high score=worse)	1	32	Weighted Mean Difference (Random) 95% CI	1.90 [-1.75, 5.55]
06 Mental state: 3. Endpoint score at 24 week (PANSS general psychopathology, high score=worse)	1	32	Weighted Mean Difference (Random) 95% CI	0.00 [-3.12, 3.12]
07 Mental state: 4. Endpoint HAM-D score at 24 weeks (skewed data)			Other data	No numeric data
08 Mental state: 5. Change score of depression subscale (POMS, high score=poor)	1	25	Weighted Mean Difference (Random) 95% CI	-5.99 [-15.96, 3.98]
09 Mental state: 6. Change score of depression (Zung, high score=poor)	1	25	Weighted Mean Difference (Random) 95% CI	-7.17 [-18.65, 4.31]
10 Mental state: 7. Change score of future outlook (FOI, high score=better)	1	25	Weighted Mean Difference (Random) 95% CI	-10.36 [-34.91, 14.19]
11 Quality of life: Endpoint score at 24 weeks (QWB, high score=better)	1	32	Weighted Mean Difference (Random) 95% CI	-0.02 [-0.07, 0.03]

Comparison 02. LIFE SKILLS PROGRAMME vs ATTENTION-CONTROL

Outcome title	No. of studies	No. of participants	Statistical method	Effect size
01 Life skills: Endpoint score at 24 week (UPSA, high score=better)	1	158	Weighted Mean Difference (Random) 95% CI	-2.50 [-8.94, 3.94]
02 General functioning: 1. Medication management ability, endpoint at 24 weeks (MMAA, high score=worse)			Other data	No numeric data
03 General functioning: 2. Social skill performance, endpoint score at 24 weeks (SSPA, high score=better)	1	158	Weighted Mean Difference (Random) 95% CI	-0.90 [-3.39, 1.59]
04 Mental state: 1. Endpoint score at 24 weeks (PANSS total, high score=worse)	1	158	Weighted Mean Difference (Random) 95% CI	2.70 [-4.78, 10.18]
05 Mental state: 2. Endpoint score at 24 weeks (Ham-D, high score=worse)			Other data	No numeric data
06 Quality of life: Endpoint score at 24 weeks (QWB, high score=better)	1	158	Weighted Mean Difference (Random) 95% CI	0.90 [-3.12, 4.92]

INDEX TERMS

Medical Subject Headings (MeSH)

Activities of Daily Living; *Adaptation, Psychological; Chronic Disease; Mental Disorders [*rehabilitation]; Self Care; *Social Adjustment

MeSH check words

Humans

COVER SHEET

Title	Life skills programmes for chronic mental illnesses
Authors	Tungpunkom P, Nicol M
Contribution of author(s)	Patraporn Tungpunkom - data extraction and assimilation, searching by hand, report writing. Maggie Nicol - protocol development, data extraction and assimilation Judith Wright-trail searching; study extraction Jun Xia-Chinese translation John Rathbone-statistic and review consultant
Issue protocol first published	1996/2
Review first published	1998/3
Date of most recent amendment	23 February 2008
Date of most recent SUBSTANTIVE amendment	20 February 2008

What's New	Electronic search for the May 2007 review update produced two additional studies for inclusion.
Date new studies sought but none found	Information not supplied by author
Date new studies found but not yet included/excluded	05 May 2007
Date new studies found and included/excluded	20 June 2007
Date authors' conclusions section amended	30 November 2007
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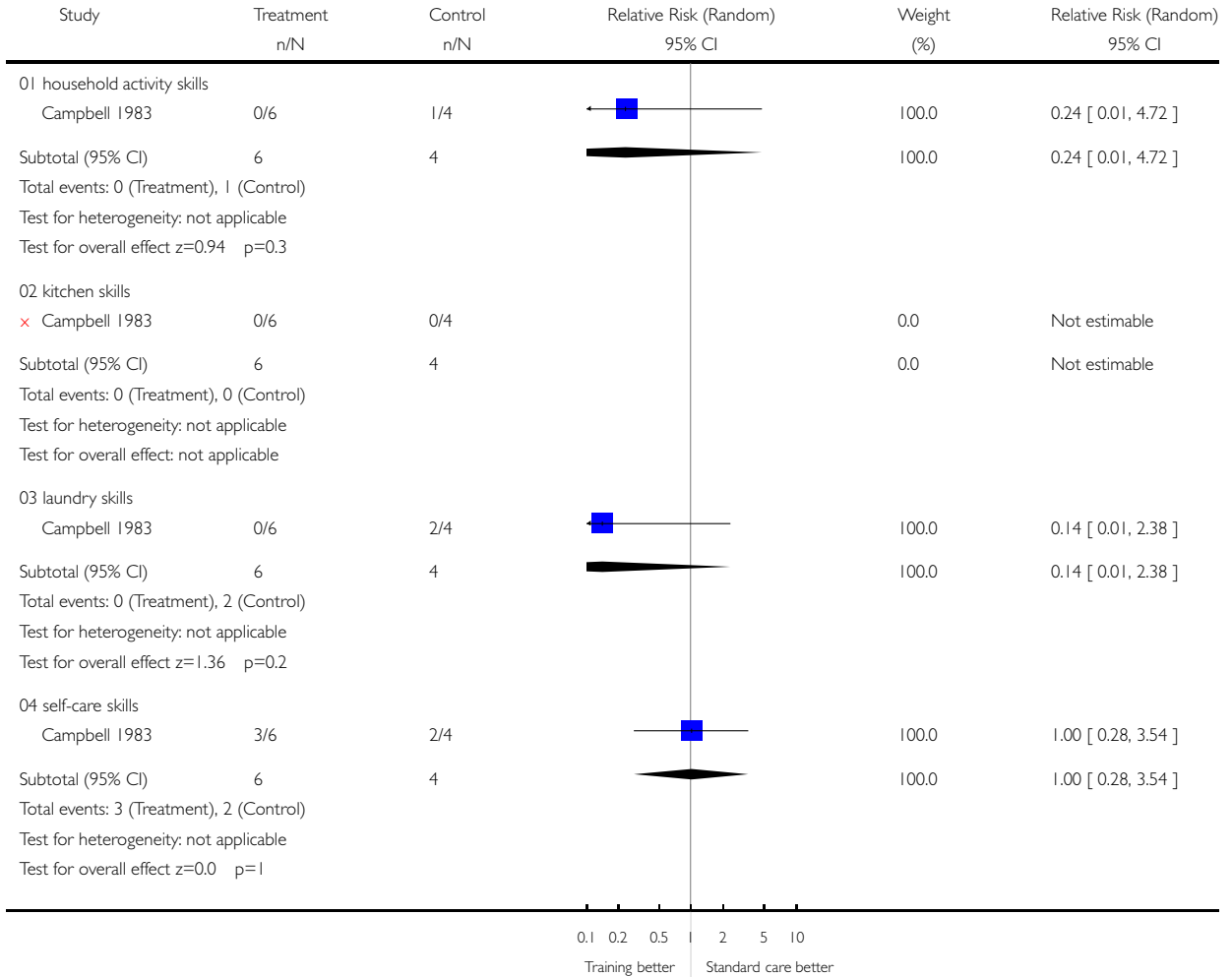
GRAPHS AND OTHER TABLES

Analysis 01.01. Comparison 01 LIFE SKILLS PROGRAMME vs STANDARD CARE, Outcome 01 Life skills: I. No important change in specific skills

Review: Life skills programmes for chronic mental illnesses

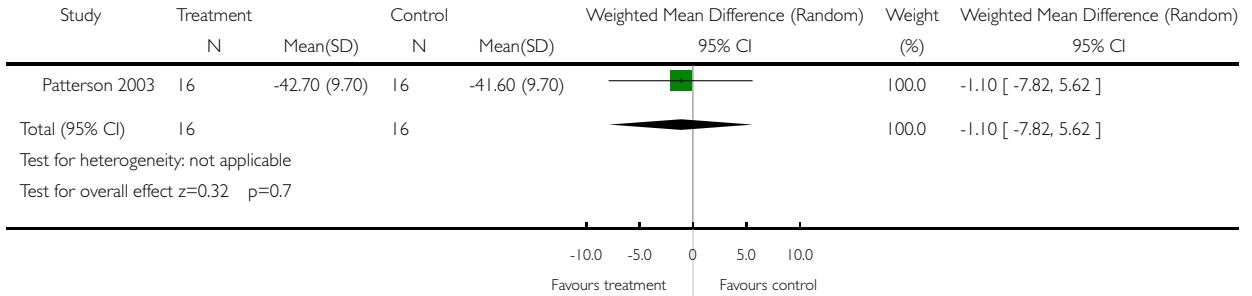
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Outcome: 01 Life skills: I. No important change in specific skills



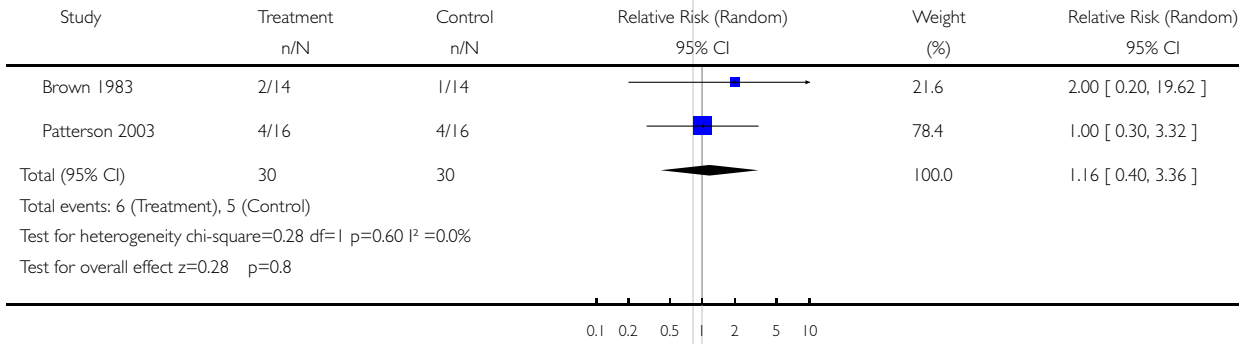
Analysis 01.02. Comparison 01 LIFE SKILLS PROGRAMME vs STANDARD CARE, Outcome 02 Life skills: 2. Endpoint score (UPSA, high score=better)

Review: Life skills programmes for chronic mental illnesses
 Comparison: 01 LIFE SKILLS PROGRAMME vs STANDARD CARE
 Outcome: 02 Life skills: 2. Endpoint score (UPSA, high score=better)



Analysis 01.03. Comparison 01 LIFE SKILLS PROGRAMME vs STANDARD CARE, Outcome 03 Leaving the study early

Review: Life skills programmes for chronic mental illnesses
 Comparison: 01 LIFE SKILLS PROGRAMME vs STANDARD CARE
 Outcome: 03 Leaving the study early

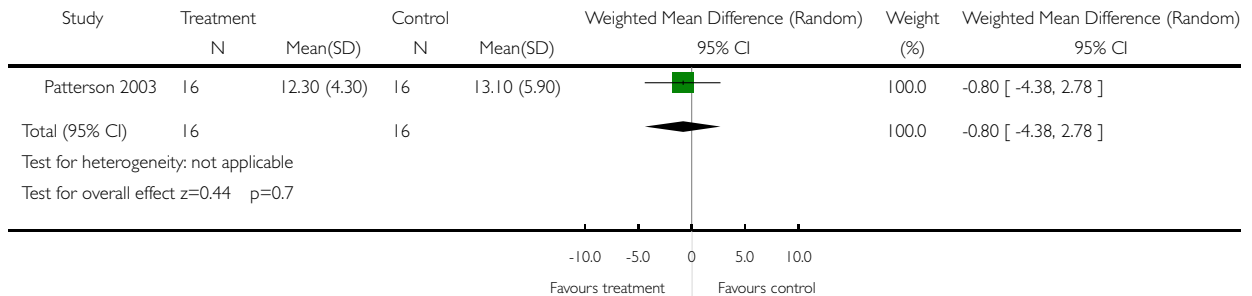


Analysis 01.04. Comparison 01 LIFE SKILLS PROGRAMME vs STANDARD CARE, Outcome 04 Mental state: 1. Endpoint score at 24 wks (PANSS positive syndrome, high score=worse)

Review: Life skills programmes for chronic mental illnesses

Comparison: 01 LIFE SKILLS PROGRAMME vs STANDARD CARE

Outcome: 04 Mental state: 1. Endpoint score at 24 wks (PANSS positive syndrome, high score=worse)

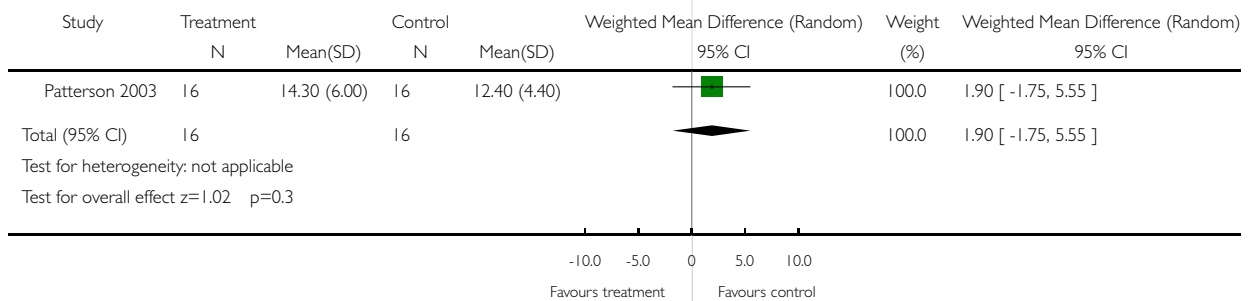


Analysis 01.05. Comparison 01 LIFE SKILLS PROGRAMME vs STANDARD CARE, Outcome 05 Mental state: 2. Endpoint score at 24 week (PANSS negative syndrome; high score=worse)

Review: Life skills programmes for chronic mental illnesses

Comparison: 01 LIFE SKILLS PROGRAMME vs STANDARD CARE

Outcome: 05 Mental state: 2. Endpoint score at 24 week (PANSS negative syndrome; high score=worse)

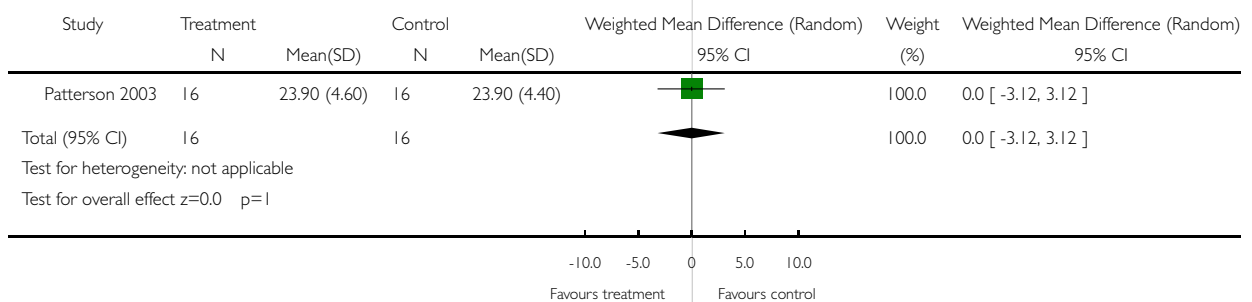


Analysis 01.06. Comparison 01 LIFE SKILLS PROGRAMME vs STANDARD CARE, Outcome 06 Mental state: 3. Endpoint score at 24 week (PANSS general psychopathology, high score=worse)

Review: Life skills programmes for chronic mental illnesses

Comparison: 01 LIFE SKILLS PROGRAMME vs STANDARD CARE

Outcome: 06 Mental state: 3. Endpoint score at 24 week (PANSS general psychopathology, high score=worse)



Analysis 01.07. Comparison 01 LIFE SKILLS PROGRAMME vs STANDARD CARE, Outcome 07 Mental state: 4. Endpoint HAM-D score at 24 weeks (skewed data)

Mental state: 4. Endpoint HAM-D score at 24 weeks (skewed data)

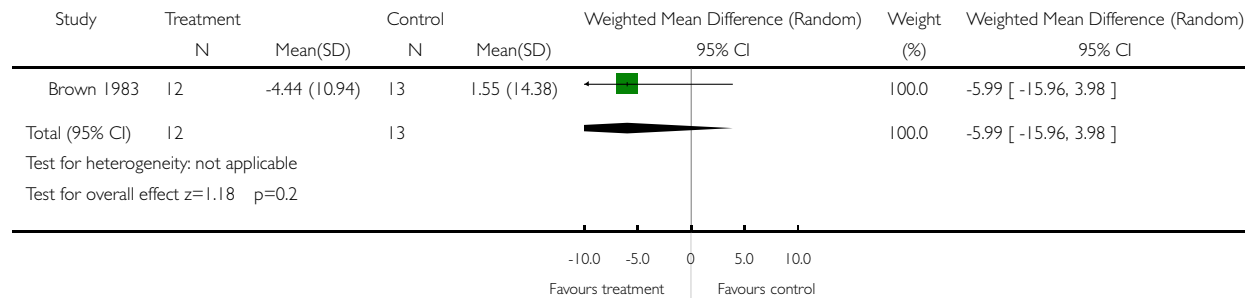
Study	Intervention	Mean	SD	N
Patterson 2003	Life skill	7.20	4.90	16
Patterson 2003	Standard care	7.90	5.00	16

Analysis 01.08. Comparison 01 LIFE SKILLS PROGRAMME vs STANDARD CARE, Outcome 08 Mental state: 5. Change score of depression subscale (POMS, high score=poor)

Review: Life skills programmes for chronic mental illnesses

Comparison: 01 LIFE SKILLS PROGRAMME vs STANDARD CARE

Outcome: 08 Mental state: 5. Change score of depression subscale (POMS, high score=poor)

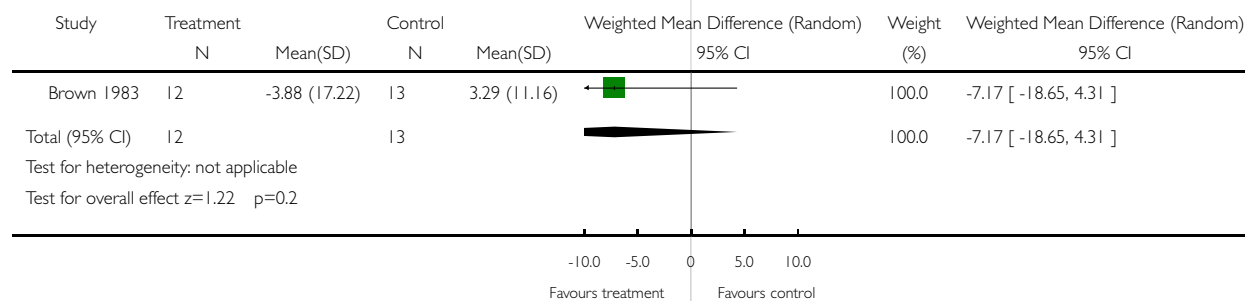


Analysis 01.09. Comparison 01 LIFE SKILLS PROGRAMME vs STANDARD CARE, Outcome 09 Mental state: 6. Change score of depression (Zung, high score=poor)

Review: Life skills programmes for chronic mental illnesses

Comparison: 01 LIFE SKILLS PROGRAMME vs STANDARD CARE

Outcome: 09 Mental state: 6. Change score of depression (Zung, high score=poor)

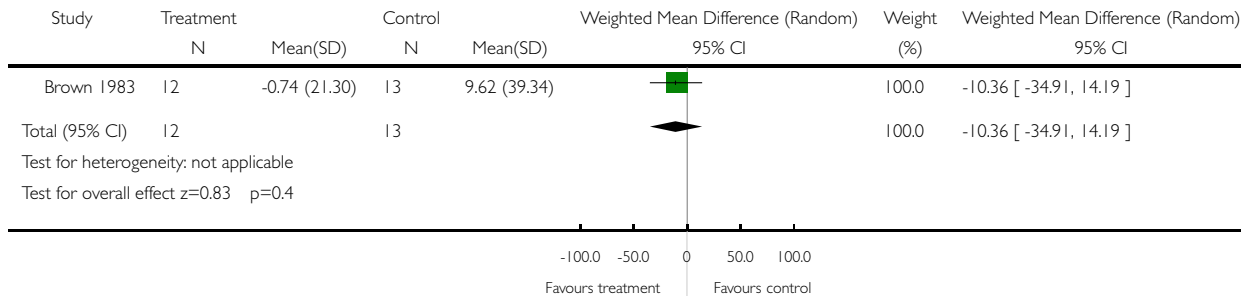


Analysis 01.10. Comparison 01 LIFE SKILLS PROGRAMME vs STANDARD CARE, Outcome 10 Mental state: 7. Change score of future outlook (FOI, high score=better)

Review: Life skills programmes for chronic mental illnesses

Comparison: 01 LIFE SKILLS PROGRAMME vs STANDARD CARE

Outcome: 10 Mental state: 7. Change score of future outlook (FOI, high score=better)

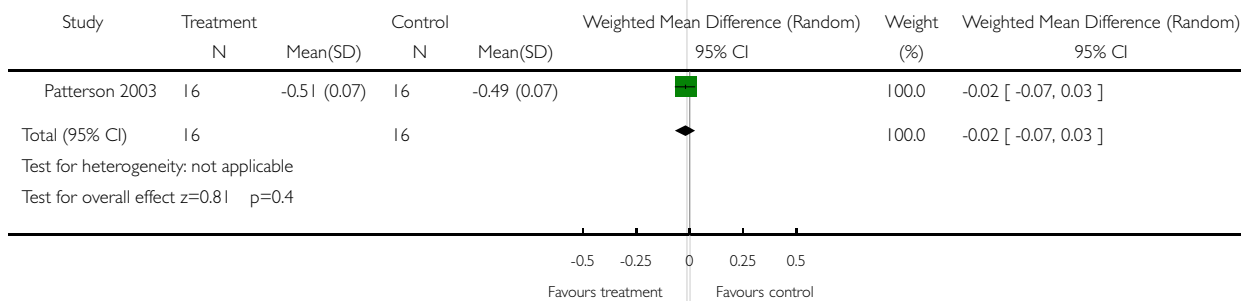


Analysis 01.11. Comparison 01 LIFE SKILLS PROGRAMME vs STANDARD CARE, Outcome 11 Quality of life: Endpoint score at 24 weeks (QWB, high score=better)

Review: Life skills programmes for chronic mental illnesses

Comparison: 01 LIFE SKILLS PROGRAMME vs STANDARD CARE

Outcome: 11 Quality of life: Endpoint score at 24 weeks (QWB, high score=better)

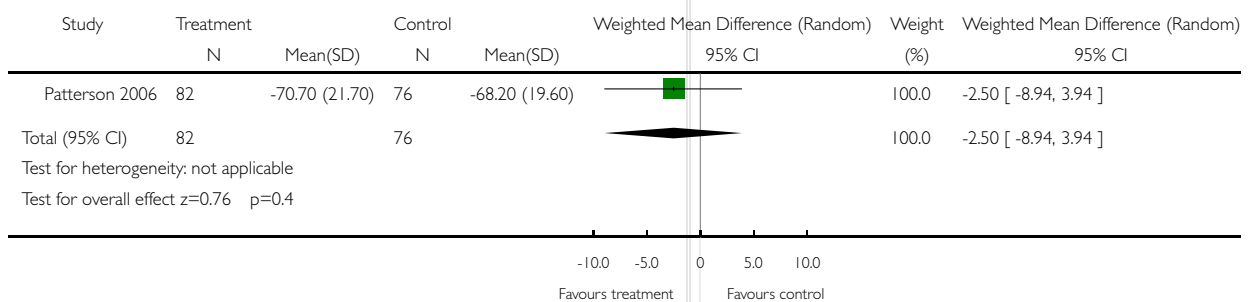


Analysis 02.01. Comparison 02 LIFE SKILLS PROGRAMME vs ATTENTION-CONTROL, Outcome 01 Life skills: Endpoint score at 24 week (UPSA, high score=better)

Review: Life skills programmes for chronic mental illnesses

Comparison: 02 LIFE SKILLS PROGRAMME vs ATTENTION-CONTROL

Outcome: 01 Life skills: Endpoint score at 24 week (UPSA, high score=better)



**Analysis 02.02. Comparison 02 LIFE SKILLS PROGRAMME vs ATTENTION-CONTROL, Outcome 02
General functioning: 1. Medication management ability, endpoint at 24 weeks (MMAA, high score=worse)**

General functioning: 1. Medication management ability, endpoint at 24 weeks (MMAA, high score=worse)

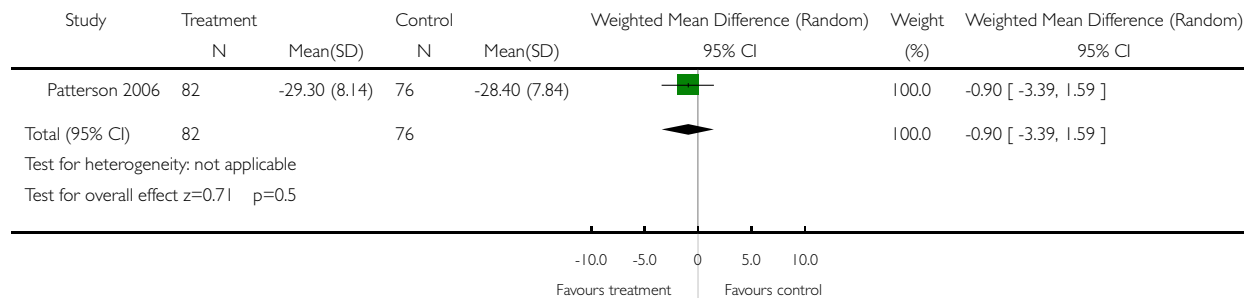
Study	Intervention	Mean	SD	N
Patterson 2006	Life skills	12.70	9.96	82
Patterson 2006	Attention control	14.60	9.58	76

**Analysis 02.03. Comparison 02 LIFE SKILLS PROGRAMME vs ATTENTION-CONTROL, Outcome 03
General functioning: 2. Social skill performance, endpoint score at 24 weeks (SSPA, high score=better)**

Review: Life skills programmes for chronic mental illnesses

Comparison: 02 LIFE SKILLS PROGRAMME vs ATTENTION-CONTROL

Outcome: 03 General functioning: 2. Social skill performance, endpoint score at 24 weeks (SSPA, high score=better)

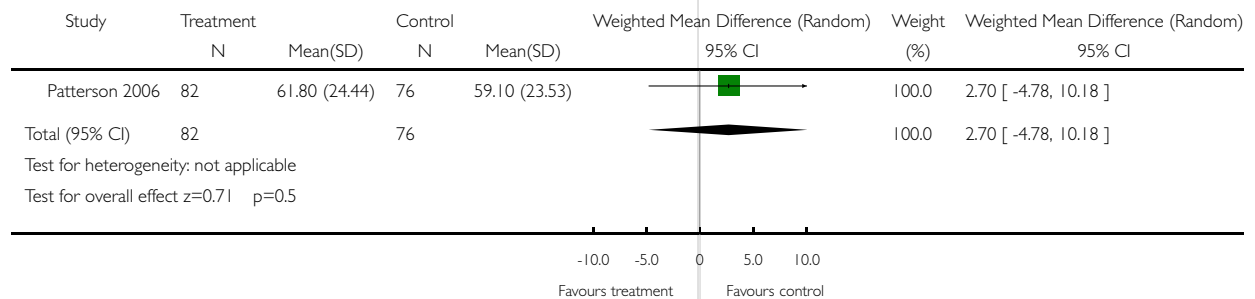


**Analysis 02.04. Comparison 02 LIFE SKILLS PROGRAMME vs ATTENTION-CONTROL, Outcome 04
Mental state: 1. Endpoint score at 24 weeks (PANSS total, high score=worse)**

Review: Life skills programmes for chronic mental illnesses

Comparison: 02 LIFE SKILLS PROGRAMME vs ATTENTION-CONTROL

Outcome: 04 Mental state: 1. Endpoint score at 24 weeks (PANSS total, high score=worse)



**Analysis 02.05. Comparison 02 LIFE SKILLS PROGRAMME vs ATTENTION-CONTROL, Outcome 05
Mental state: 2. Endpoint score at 24 weeks (Ham-D, high score=worse)**

Mental state: 2. Endpoint score at 24 weeks (Ham-D, high score=worse)

Study	Intervention	Mean	SD	N
Patterson 2006	Life skills	10.20	8.14	82
Patterson 2006	Attention control	9.70	7.84	76

**Analysis 02.06. Comparison 02 LIFE SKILLS PROGRAMME vs ATTENTION-CONTROL, Outcome 06
Quality of life: Endpoint score at 24 weeks (QWB, high score=better)**

Review: Life skills programmes for chronic mental illnesses

Comparison: 02 LIFE SKILLS PROGRAMME vs ATTENTION-CONTROL

Outcome: 06 Quality of life: Endpoint score at 24 weeks (QWB, high score=better)

