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Data supplement

Search strategy

- Pre-2002: schizophrenia guideline (published 2002)
- Post-2002: MEDLINE, EMBASE, PsycINFO, CINAHL – Ovid SP interface

Early intervention services

#	Search history
1	exp paranoid psychosis/ or exp schizophrenia/ or ''schizophrenia and disorders with psychotic features''/
2	(''paranoia (psychosis)'' or paranoid disorders or psychotic disorders or psychosis).sh.
3	(schizo$ or hebephreni$ or oligophreni$ or psychotic$ or psychosis or psychoses).mp.
4	exp movement disorders/ or exp motor dysfunction/
5	exp dyskinesia/ or (akathisia, drug-induced or akathisia or dyskinesia, drug-induced).sh.
6	neuroleptic malignant syndrome.sh.
7	(tardiv$ and dyskine$).mp.
8	(akathisi$ or acathisi$).mp.
9	(neuroleptic$ and ((malignant and syndrome) or (movement and disorder))).mp.
10	(parkinsoni$ or neuroleptic induc$).mp. not (parkindon$ and disease).ti.
11	((chronic$ or sever$) and mental$ and (ill$ or disorder$)).mp.
12	or/1-11
13	early intervention service$.mp.
14	12 and 13
15	limit 14 to yr=''2002 - 2007''
16	remove duplicates from 15
17	from 16 keep 1-65

Psychological interventions, including CBT and family intervention

#	Search history
1	exp schizophrenia/
2	(paranoid schizophrenia or paranoid psychosis).sh.
3	(schizo$ or hebephreni$).mp.
4	or/1-3
5	exp family therapy/ or (exp family/ and (therap$ or intervent$).mp.)
6	(famil$ and (therap$ or intervent$)).mp.
7	exp cognitive therapy/
8	((cognitive$ and behavio$ and therap$) or (cognit$ and (technique$ or therap$ or restructur$ or challeng$)) or attribution or (self and (instruct$ or management$)) or ret or (rational and emotiv$)).mp.
9	((social or personal or interpersonal or socialisation) and (skills$ or program$ or train$)).mp.
10	(((cognitive$ or neuro$ or memory) and remediat$) or (cogniti$ and (train$ or function$ or modif$)) or (attention$ and (train$ or management$ or remediat$)) or (memory or (train$ and remed$)) or (cognitiv$ adj rehab$)).mp.
11	exp client education/ or exp patient education/ or exp psychoeducation/
12	((patient adj (education or teaching or instruction or information or knowledge)) or (educational adj (program$ or intervention$))).mp.
13	exp counseling/ or exp supportive psychotherapy/
14	(counsel$ or (support$ adj (therap$ or psychotherapy))).mp.
15	exp psychoanalysis/ or exp psychoanalytic therapy/
16	(psychoanaly$ or ((analytic$ or dynamic$ or psychodynamic$) and (therap$ or psychotherap$))).mp.
17	or/5-16
18	exp clinical trials/ or exp clinical trial/ or exp controlled clinical trials/
19	exp crossover procedure/ or exp cross over studies/ or exp crossover design/
20	exp double blind procedure/ or exp double blind method/ or exp double blind studies/ or exp single blind procedure/ or exp single blind method/ or exp single blind studies/
21	exp random allocation/ or exp randomization/ or exp random assignment/ or exp random sample/ or exp random sampling/
22	exp randomized controlled trials/ or exp randomized controlled trial/
23	(clinical adj2 trial$).tw.
24	(crossover or cross over).tw.
25	(((single$ or doubl$ or trebl$ or tripl$) adj5 (blind$ or mask$ or dummy)) or (singleblind$ or doubleblind$ or trebleblind$)).tw.
26	(placebo$ or random$).mp.
27	(clinical trial$ or random$).pt. or (random$ or clinical control trial).sd.
28	animals/ not (animals/ and human$.mp.)
29	animal$/ not (animal$/ and human$/)
30	(animal not (animal and human)).po.
31	(or/18-27) not (or/28-30)
32	and/4,17,31
33	limit 32 to yr=''2002 - 2007''
34	remove duplicates from 33

#	Search history
#1	MeSH descriptor Schizophrenia explode all trees
#2	(schizo* or hebephreni*):ti or (schizo* or hebephreni*):ab
#3	(#1 OR #2)
#4	(famil*):ti,ab,kw or (cognitiv* and behavio* and therap*):ti,ab,kw or (social* or personal or interpersonal) and (skills* or program* or train*):ti,ab,kw or ((cognitive* or neuro* or memory) and remediat*):ti,ab,kw or (cogniti* and (train* or function* or modif*)):ti,ab,kw
#5	(attention* and (train* or management* or remediat*)):ti,ab,kw or (memory or (train* and remed*)):ti,ab,kw or (patient and (education or instruction)):ti,ab,kw or (psychoeducat*):ti,ab,kw
#6	(counsel*):ti,ab,kw or (support* and (therap* or psychotherapy)):-ti,ab,kw or (psychoanaly*):ti,ab,kw or ((analytic* or dynamic* or psychodynamic*) and (therap* or psychotherap*)):ti,ab,kw
#7	MeSH descriptor Sensory Art Therapies explode all trees
#8	MeSH descriptor Creativeness, this term only
#9	MeSH descriptor Music, this term only
#10	(music* or rhythmic* or melod*):ti or (music* or rhythmic* or melod*):ab
#11	((auditory or acoustic) near (stimulat* or cue*)):ti or ((auditory or acoustic) near (stimulat* or cue*)):ab
#12	(compose or composing or guitar* or hearing modalit* or improvis* or improviz* or piano* or sing or sings or singing or song* or (listen* near (reminisc* or orientat*))):ti or (compose or composing or guitar* or hearing modalit* or improvis* or improviz* or piano* or sing or sings or singing or song* or (listen* near (reminisc* or orientat*))):ab
#13	MeSH descriptor Drama, this term only
#14	MeSH descriptor Psychodrama explode all trees
#15	(psycho?drama* or *drama* or ((game* or play?back) near theatre*) or mime* or thera?play*):ti or (psycho?drama* or *drama* or ((game* or play?back) near theatre*) or mime* or thera?play*):ab
#16	*improvi?ation*:ti or *improvi?ation*:ab
#17	(creative or stories or story*):ti or (creative or stories or story*):ab
#18	*roleplay* or *role-play*:ti or *roleplay* or *role-play*:ab
#19	MeSH descriptor Art, this term only
#20	(art or arts or artist* or drawing* or painting*):ti or (art or arts or artist* or drawing* or painting*):ab
#21	*dance* or dancing or (movement near therap*):ti or *dance* or dancing or (movement near therap*):ab
#22	(joco?therap* or masks or puppet* or (play* near (filial or course* or curricul* or educat* or intervention* or learn* or module* or program* or rehab* or scheme* or skill* or teach* or therap* or tool* or train* or treat* or work?shop*))):ti or (joco?therap* or masks or puppet* or (play* near (filial or course* or curricul* or educat* or intervention* or learn* or module* or program* or rehab* or scheme* or skill* or teach* or therap* or tool* or train* or treat* or work?shop*))):ab
#23	(chromo?therap* or (colo?r* near (heal* or course* or curricul* or educat* or intervention* or learn* or module* or program* or rehab* or scheme* or skill* or teach* or therap* or tool* or train* or treat* or work?shop*))):ti or (chromo?therap* or (colo?r* near (heal* or course* or curricul* or educat* or intervention* or learn* or module* or program* or rehab* or scheme* or skill* or teach* or therap* or tool* or train* or treat* or work?shop*))):ab
#24	(expressive near (intervention* or therap* or treat*)):ti or (expressive near (intervention* or therap* or treat*)):ab
#25	(#4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24), from 2007 to 2008
#26	(#3 AND #25), from 2008 to 2008

Table DS1 Full details of included trials

Study (primary reference)	*n*	Participant characteristics	Treatment group	Duration and frequency of treatment	Standard care comparison group
Early intervention services					
COAST[23]	59	Participants were recruited from local CMHTs and aged between 18 and 65 years with a documented first contact with service <5 years. Participants had a diagnosis of any functional psychosis. Participants were excluded if they had a history of organic psychosis or primary intellectual disability.	Early intervention service: care coordinators, with low case-loads ($n<12$). Range of interventions offered flexibly as needed. All offered medication review and monitoring, vocational and benefits help, information about psychosis, individual CBT and family meetings and family intervention as appropriate.	Service available 7 days a week with night covered by a crisis response team 9 months follow-up reported	Offered usual services available in a local multidisciplinary team but no specialised psychological interventions nor information aimed at first-episode psychosis
LEO[11]	144	Participants were aged 16–40 years living in the borough of Lambeth and presenting to mental health services for the first time with non-affective psychoses (F20–F29 ICD–10). People who had presented once but had disengaged without treatment were considered. Participants were excluded if they had organic psychosis or a primary diagnosis of drug or alcohol misuse.	Early intervention service: community team established on principles of assertive outreach providing evidence-based interventions adapted to the needs of individuals with early psychosis. These included low-dose antipsychotic regimens, CBT, family counselling and vocational strategies.	Extended hours service including weekends and bank holidays 12 and 18 months follow-up reported	CMHT services with no additional training in managing early psychosis. Teams were however encouraged to use current clinical guidelines.
OPUS[24]	547	Participants were included from in-patient and out-patient mental health services. All had a diagnosis of a schizophrenia-spectrum disorder (ICD–10 F2 category) and had not been receiving antipsychotic medication for more than 12 weeks of continuous treatment.	Early intervention service: integrated treatment which consisted of assertive community treatment with family intervention programmes and social skills training. Each patient was allocated a primary team member responsible for coordinating treatment across the multidisciplinary team and maintaining contact with the patient. Case-loads were about a 1:10 ratio. A crisis plan was developed for each patient.	2-year treatment duration Office hours were Monday to Friday 8am to 5pm. Outside these hours patients could telephone and leave a message with their primary team member.	Services available at a local community mental health centre. This typically included a physician, community mental health nurse and a social worker in some cases. Case-loads varied between a ratio of 1:20 and 1:30
OTP[12]	50	Participants were consecutive new referrals to a mental health service aged 18–35 and had a diagnosis of a schizophrenia-spectrum disorder (SCID–IV). Onset of psychotic symptoms was less than 2 years, although participants with more than one acute psychotic episode prior to seeking treatment were considered. Participants with primary substance use disorders or intellectual disabilities were excluded as were temporary residents.	Early intervention service: integrated treatment combined optimal pharmacological interventions, case management with low case-load (a 1:10 ratio), skills training, and home-based crisis management. Participants received family intervention in the form of family psychoeducation, cognitive–behavioural family communication and problem-solving training, and individual cognitive–behavioural strategies for reducing residual symptoms and disability. Treatment sessions were conducted in the home and tailored to the needs of the individual.	2-year treatment duration Weekly hour-long treatment sessions occurred for the first 2 months, with sessions reduced to once every 3 weeks for the remainder of the first year and once monthly for the second year	Regular clinic-based services including optimal pharmacological interventions and case management

(continued)

Table DS1 Full details of included trials *(continued)*

Study (primary reference)	*n*	Participant characteristics	Treatment group	Duration and frequency of treatment	Standard care comparison group
Cognitive–behavioural therapy					
Jackson *et al*[25]	91	Eligible participants were aged 15–29 years and experiencing a first episode of psychosis (DSM–III–R). Participants were excluded if they had psychosis with an organic cause, epilepsy, evidence of IQ < 70 or diagnosed with substance dependence	CBT: cognitively oriented psychotherapy for first-episode psychosis (COPE) which consists of four stages: engagement, assessment, adaptation and secondary morbidity. COPE agenda typically included psychoeducation. It focused on stigma and identity issues, problems with motivation and social withdrawal. These issues were addressed using cognitive–behavioural techniques.	12 months duration. Although the frequency of sessions was determined by the needs of the clients, typically participants received one 40-minute session per week or fortnight.	Standard care from the Early Psychosis Prevention and Intervention Centre (EPPIC), which includes access to mobile assessment, home-based treatment and personal assessment and crisis evaluation clinic, in-patient and out-patient units, family work (but not structured family intervention) and prolonged recovery programmes.
Lecomte *et al*[28]	75	Participants were recruited from early intervention programmes and community mental health clinics. Participants were aged 18–35 years and were currently presenting with persistent or fluctuating psychotic symptoms. Individuals with a diagnosis of non-affective psychosis were included as were participants with an unclear diagnosis. Participants had consulted a mental health professional about their psychotic symptoms for the first time within the past 2 years. Participants with organic brain disorders and those already receiving one of the interventions were excluded.	CBT: group-based intervention following a manualised approach but adapted to the needs of first-episode psychosis. The manual covered four areas and followed a positive approach which emphasised reaching specific goals, decreasing distress and findings the solutions that worked best for the individual.	24 treatment sessions delivered twice a week for 3 months.	Usual services delivered by local mental health clinics or early intervention programmes if available in the area. Clients in the control group could receive one of the interventions (CBT or skills training) if they wished after the 9-month follow-up period
Lewis *et al*[26]	203	Participants had a clinical diagnosis of schizophrenia-spectrum disorders (DSM–IV). Inclusion criteria included either a first or second admission (within 2 years of a first admission) for psychosis. Participants with organic disorders or substance misuse were excluded	CBT: individual manualised approach which was conducted over four stages and focused on engagement, problem formulation, intervention and monitoring. In particular, positive psychotic symptoms were addressed, with alternative hypotheses generated for abnormal beliefs and hallucinations. The intervention also aimed to identify factors which precipitated and alleviated positive symptoms and distress.	5 weeks CBT programme plus booster sessions after a further 2 weeks and 1, 2 and 3 months	Routine clinical care from local mental health units
Wang *et al*[27]	251	Participants had a diagnosis of schizophrenia (ICD–10) and were in their first episode of schizophrenia	CBT: focused on psychoeducation and insight-building. The intervention aimed to replace irrational thoughts with rational ones and to facilitate communication with the family. CBT occurred in the recovery stage.	6 weekly sessions lasting about 40–50 min	Participants received standard hospital services and were allocated to either clozapine or risperidone. Treatment followed three stages with each stage lasting 3–4 weeks: medication, maintenance and recovery.

(continued)

Table DS1 Full details of included trials *(continued)*

Study (primary reference)	*n*	Participant characteristics	Treatment group	Duration and frequency of treatment	Standard care comparison group
Family intervention					
Goldstein *et al*[29]	104	Participants screened positive for probable schizophrenia on the New Haven Schizophrenia Index: 69% of participants were first admissions, with the remaining 31% second admissions	Family intervention: crisis-oriented family therapy. Goals of the interventions included: (a) acceptance of psychosis; (b) identifying probable precipitating stresses at the time onset occurred; (c) identifying potential factors that the family may be vulnerable to; and (d) planning to minimise the impact of any future stresses.	Six weekly sessions	Participants received either a high or low dose of fluphenazine and received standard care from the mental health centre
Leavey *et al*[30]	106	Participants had a recent diagnosis of psychosis (ICD–9) and were in contact with psychiatric services within the past 6 months. Participants with organic disorders or intellectual difficulties were excluded	Family intervention: individual sessions which usually occurred in the patient's home. The interactive sessions included educational components relating to psychotic illness, symptoms and treatment. Families were also taught coping strategies, problem-solving techniques with sessions covering communication with the patient.	Seven sessions each lasting about 1 h delivered within 6 months of first contact with services	Usual care from psychiatric services and CMHTs
Zhang *et al*[31]	78	Participants were first-admission males discharged from a mental health ward and met the Chinese Medical Association's criteria for schizophrenia Participants who were not living within commuting distance to the hospital were excluded.	Family intervention: group involving about 15 families and individual family sessions both of which usually did not include the patient. Sessions focused on education about management of the patient's treatment and discussion about the problems faced by the families and the importance of continuing medication. Families with common problems were asked to attend family groups, whereas those with unique or complex problems had individual counselling.	Group and family sessions occurred once every 1–3 months for 18 months. Minimum contact with families was once every 3 months.	Standard services available through the hospital out-patient department

CBT, cognitive–behavioural therapy; COAST, Croydon Outreach And Assertive Support Team; CMHTs, community mental health teams; LEO, Lambeth Early Onset; OTP, Optimal Treatment Project.

Table DS2 Excluded studies[a] with reasons for exclusion

Study (primary reference)	Interventions	Reasons for exclusion
Power *et al*[44]	Early intervention service	Study does not compare an early intervention service with standard care. RCT of GP education intervention (and link to early intervention service team) *v.* standard care. Main outcome is GP referral to services.
Linszen *et al*[45]	Early intervention service/family intervention	No standard care comparison group: early intervention service plus individual therapy *v.* early intervention service plus family therapy
PACE (McGorry *et al*)[46]	Early intervention service	No clinical diagnosis: main aim of the study is to prevent psychosis in high-risk groups
Rosenbaum *et al*[47]	Early intervention service	Methodological quality: participants not properly randomised into all treatment conditions
Gleeson *et al*[32]	Early intervention service + CBT and family therapy for relapse prevention.	Study does not compare an early intervention service with standard care. RCT of early intervention service + CBT and family therapy *v.* early intervention service.
Øhlenschlæger *et al*[48]	Early intervention service	Focus not on psychosis: main outcome is use of coercive measures
Waldheter *et al*[49]	Early intervention service	Methodological quality: preliminary data, participants not randomised
HEART (Kelly *et al*)[50]	Early intervention service	Methodological quality: participants not randomised
EDIE (Morrison *et al*)[51]	CBT	No clinical diagnosis: main aim of study is to prevent psychosis in ultra-high-risk groups
Edwards *et al*[52]	CBT	Focus not on psychosis: main aim of study concerned substance misuse
Haddock *et al*[53]	CBT	No standard care comparison: CBT *v.* supportive counselling
Jackson *et al*[54]	CBT	Methodological quality: study not randomised
Jackson *et al*[55]	CBT	No standard care comparison: CBT *v.* befriending
Jolley *et al*[56]	CBT	Methodological quality: n<10 in one treatment arm
LifeSPAN (Power *et al*)[57]	CBT	Focus not on psychosis: main aim of the study is on suicide prevention
Newton *et al*[58]	CBT	No clinical/formal diagnosis of psychosis
So *et al*[59]	Family intervention	No extractable data relevant to the present review: carer outcomes only
Chan *et al*[60]	Family intervention	Intervention does not meet definition of family intervention

CBT, cognitive–behavioural therapy; EDIE, Early Detection and Intervention Evaluation trial; HEART, Hounslow early active recovery team; PACE, personal assessment and crisis evaluation; RCT, randomised controlled trial; GP, general practitioner.
a. This table includes four additional papers excluded from the 2002 schizophrenia guideline.

Additional references

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45 Linszen D, Dingemans PMAJ, van der Does AJW. Treatment, expressed emotion, and relapse in recent onset schizophrenic disorders. *Psychol Med* 1996; **26**: 333–42.

46 McGorry PD, Yung AR, Phillips LJ, Yuen HP, Francey S, Cosgrave EM, et al. Randomized controlled trial of interventions designed to reduce the risk of progression to first-episode psychosis in a clinical sample with subthreshold symptoms. *Arch Gen Psychiatry* 2002; **59**: 921–8.

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49 Waldheter EJ, Penn DL, Perkins DO, Mueser KT, Whaley Owens L, Cook E. The graduated recovery intervention program for first episode psychosis. Treatment development and preliminary data. *Community Ment Health J* 2008; **44**: 443–55.

50 Kelly J, Wellman N, Sin J. HEART – the Hounslow early active recovery team: implementing an inclusive strength-based model of care for people with early psychosis. *J Psychiatr Ment Health Nurs* 2009; **16**: 569–77.

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53 Haddock G, Tarrier N, Morrison AP, Hopkins R, Drake R, Lewis S. A pilot study evaluating the effectiveness of individual inpatient cognitive-behavioural therapy in early psychosis. *Soc Psychiatry Psychiatr Epidemiol* 1999; **34**: 254–8.

54 Jackson H, McGorry P, Edwards J, Hulbert C, Henry L, Francey S, et al. Cognitively-oriented psychotherapy for early psychosis (COPE). Preliminary results. *Br J Psychiatry* 1998; **172** (suppl 33): 93–100.

55 Jackson HJ, McGorry PD, Killackey E, Bendall S, Allott K, Dudgeon P, et al. Acute-phase and 1-year follow-up results of a randomised controlled trial of CBT versus befriending for first-episode psychosis: the ACE project. *Psychol Med* 2008; **38**: 725–35.

56 Jolley S, Garety P, Craig T, Dunn G, White J, Aitken M. Cognitive therapy in early psychosis. A pilot randomized controlled trial. *Behav Cogn Psychother* 2003; **31**: 473–8.

57 Power PJ, Bell RJ, Mills R, Herman-Doig T, Davern M, Henry L, et al. Suicide prevention in first episode psychosis: the development of a randomised controlled trial of cognitive therapy for acutely suicidal patients with early psychosis. *Aust N Z J Psychiatry* 2003; **37**: 414–20.

58 Newton E, Landau S, Smith P, Monks P, Shergill S, Wykes T. Early psychological intervention for auditory hallucinations: an exploratory study of young people's voices groups. *J Nerv Ment Dis* 2005; **193**: 58–61.

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