TECHNICAL COMMENTARY

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Family intervention

Introduction

Family intervention is used as an adjunct to pharmaceutical therapy and involves the introduction of a patient's immediate family into a psychosocial treatment setting. The goals of family intervention involves improving treatment outcomes, preventing relapse, and improving the family's relationships and understanding of the disorder as well as improving their own mental health, should that be compromised. As such family interventions often have a focus on psychoeducation or improving coping strategies. These two approaches share common features, including the provision of information on the disorder, emphasizing instructions for medication and treatment adherence. They can also employ cognitive behavioural interventions to improve problem solving and communication skills and reduce expressed emotion. This type of intervention aims to enhance the capacity of both patients and their families for problem solving and illness management.

The importance of family intervention arises from suggestions that patients from families with high levels of expressed emotion, criticism, hostility or over-involvement may contribute to increasing psychotic relapse in schizophrenia patients. This type of intervention is particularly important as many patients are treated in outpatient or community care settings, often living at home with their families. Appropriately, families who are well-educated in the disorder will be better equipped to assist mental health professionals in its day to day management. Family intervention may also be protective of the mental health of all members by reducing the stress of the illness on the family unit.

Method

We have included only systematic reviews (systematic literature search, detailed methodology with inclusion/exclusion criteria) published in full text, in English, from the year 2000 that report results separately for people with a diagnosis of schizophrenia, schizoaffective disorder, schizophreniform disorder or first episode schizophrenia. Reviews were identified by searching the databases MEDLINE, EMBASE, CINAHL, Current Contents, PsycINFO and the Cochrane library. Hand searching reference lists of identified reviews was also conducted. When multiple copies of reviews were found, only the most recent version was included. Reviews with pooled data are prioritised for inclusion

Review reporting assessment was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist that describes a preferred way to present a meta-analysis[1]. Reviews reporting less than 50% of items have been excluded from the library. The PRISMA flow diagram is a suggested way of providing information about studies included and excluded with reasons for exclusion. Where no flow diagram has been presented by individual reviews, but identified studies have been described in the text, reviews have been checked for this item. Note that early reviews may have been guided by less stringent reporting checklists than the PRISMA, and that some reviews may have been limited by journal guidelines.

Evidence was graded using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group approach where high quality evidence such as that gained from randomised controlled trials (RCT) may be downgraded to moderate or low if review and study quality is limited, if there is inconsistency in results, indirect comparisons, imprecise or sparse data and high probability of

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reporting bias. It may also be downgraded if risks associated with the intervention or other matter under review are high. Conversely, low quality evidence such as that gained from observational studies may be upgraded if effect sizes are large, there is a dose dependent response or if results are reasonably consistent, precise and direct with low associated risks (see end of table for an explanation of these terms)[2]. The resulting table represents an objective summary of the available evidence, although the conclusions are solely the opinion of staff of NeuRA (Neuroscience Research Australia).

Results

We found eight systematic reviews that met our inclusion criteria[3-10].

- High quality evidence finds family intervention reduces relapse rates when compared to standard care. Longer treatment duration shows the greatest effect, and benefit was seen regardless of intervention type and criteria for relapse.
- Moderate quality evidence suggests family intervention may also have small to medium benefits over standard care for improving patient functioning, quality of life, compliance with medication, hospitalisation rates, family burden, knowledge, coping and understanding, and high expressed emotion.
- Compared to other psychosocial therapies, moderate quality evidence finds family intervention improved relapse and readmission rates but had no effect on expressed emotion or medication adherence.
- Low quality evidence is unclear as to any benefit of integrated family therapy for reducing substance use or improving mental state or global function in people with schizophrenia and a substance use disorder.

Drake RE, O'Neal EL, Wallach MA

A systematic review of psychosocial research on psychosocial interventions for people with co-occurring severe mental and substance use disorders

Journal of Substance Abuse Treatment 2008; 34(1): 123-138

View review abstract online

Comparison	**Integrated family therapy, CBT and motivational interviewing (MI) for substance abuse vs. treatment as usual for 9 months.** **Only samples with defined schizophrenia spectrum disorders are reported.**
Summary of evidence	**Low quality evidence (direct, small sample size, unable to assess consistency or precision) is unclear as to any benefit of integrated family therapy for reducing substance use, or improving mental state or global function.**
Mental health and substance use	
1 RCT, N = 36, had 9 months of integrated intervention treatment of family therapy, CBT, and MI compared to treatment as usual, with evaluations after 9, 12 and 18 months of treatment. Authors reported increased abstinence from all substances except that most frequently used, and no difference in dependence or severity measures at 12 months. They reported decreased relapse rates, decreased negative symptoms at 9 months and 18 months, and decreased positive symptoms at 12 months.	
Consistency in results	Unable to assess; no measure of consistency is reported.
Precision in results	Unable to assess; no measure of precision is reported.
Directness of results	Direct

Claxton M, Onwumere J, Fornells-Ambrojo M

Do family interventions improve outcomes in early psychosis? A systematic review and meta-analysis

Family intervention

Frontiers in Psychology 2017; 8: 371 View review abstract online	
Comparison	**Family intervention including family work, psychoeducation and family therapy for people with early psychosis (and their families) vs. standard care.** **Mean treatment duration was 11 sessions over 4-24 months.**
Summary of evidence	**Moderate to low quality evidence (small to medium-sized samples, some inconsistency and imprecision, direct) finds family intervention for people with early psychosis improves caregiver burden and overall expressed emotion, particularly reducing critical comments and communication conflict. It may also reduce patient relapse and improve patient functioning.**
Carer burden and expressed emotion	
A large, significant effect of improved overall expressed emotion; End of treatment: 2 studies, N = 49, OR = 16.76, 95%CI 1.96 to 143.44, p = 0.01, I^2 = 0%, p = 0.52 *A large, significant effect of reduced critical comments;* End of treatment: 3 studies, N = 191, SMD = -0.84, 95%CI -1.15 to -0.53, p < 0.001, I^2 = 94%, p < 0.001 Up to 2.5 years: 1 study, N = 21, SMD = -0.96, 95%CI -1.87 to -0.05, p = 0.04 *A large, significant effect of reduced communication conflict;* End of treatment: 3 studies, N = 150, SMD = -0.44, 95%CI -0.77 to -0.12, p = 0.008, I^2 = 0%, p = 0.51 *A large, significant effect of reduced caregiver burden at end of treatment, but not at follow up;* End of treatment: 3 studies, N = 274, SMD = -0.72, 95%CI -0.97 to -0.47, p < 0.001, I^2 = 88%, p < 0.001 Up to 2.5 years: 3 studies, N = 247, SMD = -0.31, 95%CI -1.53 to 0.91, p = 0.62, I^2 = 95%, p < 0.001 *There were no significant differences in emotional over involvement;* End of treatment: 2 studies, N = 162, SMD = -0.08, 95%CI -2.14 to 1.97, p = 0.94, I^2 = 97%, p < 0.001 Up to 2.5 years: 2 studies, N = 135, SMD = -0.45, 95%CI -1.94 to 1.04, p = 0.56, I^2 = 88%, p = 0.004	
Patient mental state, relapse and hospitalisation	
A large, significant effect of improved symptoms in at follow-up, but not at end of treatment; End of treatment: 4 studies, N = 259, SMD = -0.26, 95%CI -0.61 to 0.09, p < 0.15, I^2 = 14%, p =	

0.14 Up to 2 years: 2 studies, N = 163, SMD = -0.85, 95%CI -1.05 to -0.20, *p* = 0.01, I^2 = 72%, *p* = 0.06 *A medium-sized, significant effect of fewer relapses at the end of treatment, but not at follow-up;* End of treatment: 7 studies, N = 594, RR = 0.58, 95%CI 0.34 to 1.00, *p* = 0.05, I^2 = 51%, *p* = 0.06 Up to 5 years: 3 studies, N = 474, RR = 0.98, 95%CI 0.32 to 2.99, *p* = 0.98, I^2 = 79%, *p* = 0.009 *There were no significant differences in length of hospitalisation;* End of treatment: 3 studies, N = 161, SMD = -0.58, 95%CI -1.43 to 0.27, *p* = 0.18, I^2 = 84%, *p* = 0.01 Up to 2 years: 2 studies, N = 76, SMD = -0.12, 95%CI -0.58 to 0.35, *p* = 0.62, I^2 = 0%, *p* = 0.99
Patient functioning
A medium-sized, significant effect of improved functioning at the end of treatment, but not at follow-up; End of treatment: 4 studies, N = 175, SMD = 0.74, 95%CI 0.13 to 1.36, *p* = 0.02, I^2 = 70%, *p* = 0.02 Up to 2 years: 1 study, N = 49, SMD = 0.22, 95%CI -0.34, to 0.79, *p* = 0.43

Consistency in results	Consistent for overall expressed emotion, communication conflict, symptoms, and length of hospitalisation at follow-up.
Precision in results	Precise for critical comments at end of treatment, communication conflict, burden at end of treatment, symptoms at end of treatment, and length of hospitalisation at follow-up.
Directness of results	Direct

Okpokoro U, Adams CE, Sampson S

Family intervention (brief) for schizophrenia

Cochrane Database of Systematic Reviews 2014, Issue 3. Art. No.: CD009802. DOI: 10.1002/14651858.CD009802.pub2

View review abstract online

Comparison	**Any brief family intervention vs. standard care.**
Summary of evidence	**Low quality evidence (small samples, imprecise) is unable to determine the benefits of brief family interventions.**

Family intervention

Hospitalisation
No differences between groups; 1 RCT, N = 30, RR = 0.50, 95% CI 0.22 to 1.11, $p > 0.05$
Relapse
No differences between groups; 1 RCT, N = 40, RR = 0.50, 95% CI 0.10 to 2.43, $p > 0.05$
Family understanding
A significant improvement in the brief family intervention group; 1 RCT, N = 70, MD = 14.90, 95% CI 7.20 to 22.60, $p < 0.05$

Consistency in results	Not applicable (1 RCT).
Precision in results	Imprecise
Directness of results	Direct

Pfammatter M, Junghan UM, Brenner HD

Efficacy of psychological therapy in schizophrenia: conclusions from meta-analyses

Schizophrenia Bulletin 2006; 32(Suppl 1): S64-80

View review abstract online

Comparison	**Psychoeducational coping-oriented interventions involving families and relatives vs. unspecified control groups.**
Summary of evidence	**Moderate quality evidence (medium to large samples, consistent, precise, indirect) shows family psychoeducation has a medium-sized benefit for reduced familial expressed emotion and a small benefit for increasing relatives' knowledge about the disorder. Patients reported fewer relapses and hospitalisations (small to medium-sized effects), fewer days in hospital if hospitalised (small to large effects), and improved social functioning (medium-sized effect). Moderate to low quality evidence also shows small benefits for patients' general psychopathology.**

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Family intervention

Family knowledge and expressed emotion	
A significant, medium-sized effect of reduced familial high-expressed emotion in the education group; 7 RCTs, patient N = 284, *g* = 0.59, 95%CI 0.36 to 0.83, *p* < 0.05, Q = 3.56, *p* = 0.74 *A significant, small increase in relatives' knowledge about the disorder in the education group;* 8 RCTs, patient N = 3,662, *g* = 0.39, 95%CI 0.31 to 0.46, *p* < 0.05, Q = 2.04, *p* = 0.96	
Patient's social functioning	
A significant, small effect of improved social functioning in patients in the education group; 6 RCTs, patient N = 3,362, *g* = 0.38, 95%CI 0.30 to 0.46, *p* < 0.05, Q = 2.84, *p* = 0.72	
Patient's mental state, relapse and hospitalisation rates	
At 6-12 months follow up, there was a small effect of reduced relapse rates in the education group; 14 RCTs, patient N = 3,838, *g* = 0.42, 95%CI 0.35 to 0.49, *p* < 0.05, Q = 16.58, *p* = 0.22 *At 6-12 months follow up, there was a small effect of reduced hospitalisation rates in the education group;* 13 RCTs, patient N = 3,789, *g* = 0.22, 95%CI 0.14 to 0.29, *p* < 0.05, Q = 12.35, *p* = 0.42 *At 18-24 months follow up, there was a medium-sized effect of reduced hospitalisation rates in the education group;* 8 RCTs, N = 445, *g* = 0.51, 95%CI 0.32 to 0.70, *p* < 0.05, Q = 6.83, *p* = 0.45 *Post-treatment, there was a significant, small effect of fewer days in hospital in the education group;* 3 RCTs, patient N = 3,197, *g* = 0.27, 95%CI 0.18 to 0.36, *p* < 0.05, Q = 0.39, *p* = 0.82 *At < 6 months follow up, there was a large effect of fewer days in hospital in the education group;* 2 RCTs, patient N = 127, *g* = 0.71, 95%CI 0.35 to 1.06, *p* < 0.05, Q = 1.70, *p* = 0.19 *At < 6 months follow up, there was a small effect of greater improvement in patients' general psychopathology in the education group;* 4 RCTs, patient N = 178, *g* = 0.40, 95%CI 0.10 to 0.70, *p* < 0.05, Q = 2.10, *p* = 0.56	
Consistency in results	Consistent
Precision in results	Precise
Directness of results	Indirect comparison (mixed control conditions combined).

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Family intervention

Family intervention for schizophrenia

Cochrane Database of Systematic Reviews 2010; (12): CD000088

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Comparison 1	**Any family intervention (>5 sessions total, some with educational component) vs. standard care.**
Summary of evidence	**Moderate quality evidence (medium to large samples, mostly consistent, mostly imprecise, direct) suggests family intervention may have a small to medium effect for improvements in global and social functioning, family coping and understanding, high expressed emotion, quality of life, compliance with medication, hospitalisation and relapse rates.**

Hospitalisation

Significant, small to medium-sized effects for reduced hospital admission from 6 months to 18 months follow up, with no differences from 19 months to 3 years;

Hospital admission: 0-6 months: 3 studies, N = 232, RR = 0.85, 95%CI 0.44 to 1.66, $p = 0.63$; Q = 4.11, $p = 0.13$, $I^2 = 51\%$

7-12 months: 9 studies, N = 532, RR = 0.78, 95%CI 0.63 to 0.98, $p = 0.032$; Q = 11.63, $p = 0.17$, $I^2 = 31\%$

13-18 months: 3 studies, N = 228, RR = 0.46, 95%CI 0.30 to 0.69, $p = 0.0002$; Q = 0.65, $p = 0.72$, $I^2 = 0\%$

19-24 months: 5 studies, N = 375, RR = 0.83, 95%CI 0.65 to 1.07, $p = 0.16$; Q = 10.49, $p = 0.03$, $I^2 = 62\%$

25-36 months: 2 study, N = 205, RR = 0.91, 95%CI 0.72 to 1.16, $p = 0.46$; Q = 6.87, $p = 0.01$, $I^2 = 85\%$

Days in hospital at 3 months: 1 study, N = 48, WMD = -6.67, 95%CI -11.59 to -1.75, $p = 0.0079$

Global state: Relapse

Small effects for reduced relapse rates from 7 to 24 months follow up. No differences from 2 to 8 years follow up post-treatment;

Relapse rates 0-6 months: 3 studies, N = 213, RR = 0.71, 95%CI 0.46 to 1.09, $p = 0.12$, Q = 0.07, $p = 0.97$, $I^2 = 0\%$

7-12 months: 32 studies, N = 2981, RR = 0.55, 95%CI 0.48 to 0.62, $p < 0.00001$; Q = 54.29, $p = 0.01$, $I^2 = 43\%$

13-18 months: 3 studies, N = 181, RR = 0.64, 95%CI = 0.47 to 0.88, $p = 0.0057$; Q = 0.38, $p = 0.83$, $I^2 = 0\%$

19-24 months: 13 studies, N = 1019, RR = 0.64, 95%CI 0.55 to 0.75, $p < 0.00001$; Q = 35.86, $p = 0.00034$, $I^2 = 67\%$ 25-36 months: 4 studies, N = 497, RR = 0.89, 95%CI 0.72 to 1.10, $p = 0.28$; Q = 9.06, $p = 0.03$, $I^2 = 67\%$ 5 years: 1 study, N = 63, RR = 0.88, 95%CI 0.70 to 1.11, $p = 0.30$ 8 years: 1 study, N = 62, RR = 0.86, 95%CI 0.71 to 1.05, $p = 0.14$
Global state: Not improved
A significant, medium-sized effect for improved global function up to 6 months follow up post-treatment; Global function "not improved/deteriorated" By six months: 1 study, N = 77, RR = 0.33, 95%CI 0.17 to 0.62, $p = 0.00066$ By 9 months: 1 study, N = 35, RR = 0.70, 95%CI 0.26 to 1.88, $p = 0.48$ Overall: 2 studies, N = 112, RR = 0.40, 95%CI 0.23 to 0.68, $p = 0.00077$; Q = 1.65, $p = 0.20$, $I^2 = 39\%$
Global state: Global Assessment of Function score
A significant improvement in global functioning by 2 years, with no differences in average change scores by 1 year; GAF endpoint score 0-12 months: 1 study, N = 32, WMD = -10.28, 95%CI -20.34 to -0.22, $p = 0.045$ By 2 years: 2 studies, N = 90, WMD = -8.66, 95%CI -14.37 to -2.94, $p = 0.003$; Q = 0.17, $p = 0.68$, $I^2 = 0\%$ SCL-90 score at 2 years: 1 study, N = 80, WMD = -22.01, 95%CI -30.99 to -13.03, $p < 0.00001$ GAF average change score pre- to post-treatment: 1 study, N = 41, WMD = 4.88, 95%CI -3.87 to 13.63, $p = 0.27$ At 1 year: 1 study, N = 40, WMD = 5.25, 95%CI -3.18 to 13.68, $p = 0.22$
Mental state: Brief Psychiatric Rating Scale
A significant improvement in BPRS total score at 1 year; 3 studies, N = 170, WMD = -8.32, 95%CI -10.92 to -5.73, $p < 0.00001$; Q = 9.32, $p = 0.01$, $I^2 = 79\%$ *No differences in BPRS-negative subscale score at 6 months;* 1 study, N = 62, WMD = -0.30, 95%CI -0.90 to 0.30, $p = 0.32$ *No differences in BPRS average change score pre- to post-treatment;* 3 studies, N = 156, WMD = -0.30, 95%CI -0.76 to 0.17, $p = 0.22$; Q = 6.32, $p = 0.04$, $I^2 = 68\%$
Mental state: Positive and Negative Syndrome Scale

Family intervention

Significant improvement in total and general psychopathology PANSS endpoint scores at 1 year, with no differences in positive or negative PANSS scores;
Total: 2 studies, N = 174, WMD -7.90, 95%CI -11.96 to -3.83, p = 0.00014; Q = 0.07, p = 0.80, I^2 = 0%
General psychopathology: 1 study, N = 142, WMD = -3.60, 95%CI -5.82 to -1.38, p = 0.0015
Positive: 1 study, N = 32, WMD = -2.72, 95%CI -6.27 to 0.83, p = 0.13
Negative: 1 study, N = 32, WMD = -2.02, 95%CI -5.88 to 1.84, p = 0.30
Significant improvement in negative PANSS scores at 18 months, with no differences in total, or positive scores;
Total: 1 study, N = 29, WMD = -6.30, 95%CI -15.98 to 3.35, p = 0.20
Positive: 1 study, N = 29, WMD = 0.94, 95%CI -2.16 to 4.04, p = 0.55
Negative: 1 study, N = 29, WMD = -5.23, 95%CI -8.43 to -2.03, p = 0.0014
Significant improvement in positive and negative PANSS score at 36 months;
Total: 1 study, N = 149, WMD = -10.20, 95%CI -13.55 to -6.85, p < 0.00001
Positive: 1 study, N = 149, WMD = -2.60, 95%CI -4.12 to -1.08, p = 0.00077
Negative: 1 study, N = 149, WMD = -3.70, 95%CI -4.94 to -2.46, p < 0.00001
Significant improvement in positive and negative change scores pre- to post-treatment;
Positive: 1 study, N = 142, WMD = -2.00, 95%CI -3.49 to -0.51, p = 0.0084
Negative: 1 study, N = 142, WMD = -4.00, 95%CI -5.81 to -2.19, p = 0.000016
Behaviour
Large effect showing poorer behaviour in the family therapy group;
NOSIE endpoint score total: 1 study, N = 142, WMD = 59.10, 95%CI 54.57 to 63.63, p < 0.0001
NOSIE positive: 1 study, N = 142, WMD = 33.40, 95%CI 30.52 to 36.28, p < 0.0001
Leaving the study early
A significant, small to medium-sized effect of reduced study attrition by 3 years only;
At 3-6 months: 7 studies, N = 552, RR = 0.92, 95%CI 0.59 to 1.42, p = 0.69, Q = 6.31, p = 0.28, I^2 = 21%
At 7-12 months: 10 studies, N = 733, RR = 0.74, 95%CI 0.53 to 1.03, p = 0.071, Q = 8.94, p = 0.35, I^2 = 10%
At 13-24 months: 10 studies, N = 887, RR = 0.74, 95%CI 0.55 to 1.00, p = 0.050, Q = 5.14, p = 0.82, I^2 = 0%
At 25-36 months: 3 studies, N = 290, RR = 0.42, 95%CI 0.26 to 0.67, p = 0.00029, Q = 0.81, p = 0.67, I^2 = 0%

At >36 months: 1 study, N = 63, RR = 1.72, 95%CI 0.71 to 4.16, *p* = 0.23
Compliance with medication
A significant, small to medium-sized effect of increased medication compliance with family intervention, with no differences for compliance with community care; Poor compliance with medication: 10 studies, N = 695, RR = 0.60, 95%CI 0.49 to 0.73, *p* < 0.00001, Q = 17.22, *p* = 0.05, I^2 = 48% Community care at 1 year: 1 study, N = 51, RR = 0.68, 95%CI 0.41 to 1.11, *p* = 0.12 Community care at 2 years: 1 study, N = 51, RR = 0.85, 95%CI 0.55 to 1.30, *p* = 0.45 Months on medication By 6 month follow up: 1 study, N = 63, WMD = 0.40, 95%CI -0.34 to 1.14, *p* = 0.29 By 18 month follow up: 1 study, N = 60, WMD = 1.6, 95%CI -1.10 to 4.30, *p* = 0.24
Death
No differences in death rates; Suicide: 7 studies, N = 377, RR = 0.79, 95%CI 0.35 to 1.78, *p* = 0.56, Q = 6.51, *p* = 0.37, I^2 = 8% Other causes: 4 studies, N = 176, RR = 0.78, 95%CI 0.19 to 3.11, *p*= 0.72, Q = 1.34, *p* = 0.71, I^2 = 0%
Social Function: General
A significant, medium-sized effect of family intervention on improved general social function; 2 studies, N = 116, RR = 0.51, 95%CI 0.35 to 0.72, *p* = 0.00019, Q = 4.05, *p* = 0.004, I^2 = 75% *A significant effect of family intervention on improved general social function;* At 1 year: Social Function scale: 3 studies, N = 90, WMD = -8.05, 95%CI -13.27 to -2.83, *p* = 0.0025, Q = 5.45, *p* = 0.07, I^2 = 63% At 2 years: Social disability scale: 1 study, N = 150, WMD = -0.51, 95%CI -1.38 to 0.36, *p* = 0.25 At 3 years: Social disability scale: 1 study, N = 150, WMD = -1.94, 95%CI -2.90 to -0.98, *p* = 0.00069
Social Function: Employment

No differences in employment; At 6-12 months: 5 studies, N = 285, RR = 1.06, 95%CI 0.89 to 1.25, *p* = 0.53, Q = 3.11, *p* = 0.54, I^2 = 0% At 2 years: 1 study, N = 51, RR = 1.33, 95%CI 0.84 to 2.10, *p* = 0.22 At 3 years: 1 study, N = 99, RR = 1.19, 95%CI 0.92 to 1.55, *p* = 0.18 *No differences in work ability* By 4 months: 1 study, N = 77, RR = 0.31, 95%CI 0.09 to 1.03, *p* = 0.055 By 9 months: 1 study, N = 35, RR = 1.68, 95%CI 0.17 to 16.91, *p* = 0.66
Social Function: Living independently
No differences between groups; At 1 year: 3 studies, N = 164, RR = 0.83, 95%CI 0.66 to 1.03, *p* = 0.087, Q = 0.33, *p* = 0.85, I^2 = 0% At 3 years: 1 study, N = 99, RR = 0.82, 95%CI 0.59 to 1.14, *p* = 0.24
Social Function: Imprisonment
No differences between groups; 1 study, N = 39, RR = 0.95, 95%CI 0.22 to 4.12, *p* = 0.95
Family outcome: Coping and understanding
A significant small to medium-sized effect of family intervention for understanding the patient better, reducing family burden and giving family support; Family not coping better at 6 months: 1 study, N = 63, RR = 0.79, 95%CI 0.60 to 1.03, *p* = 0.086 Patient coping poorly with key relatives at 9 months: 1 study, N = 39, RR = 1.11, 95%CI 0.45 to 2.70, *p* = 0.82 Family not understanding patient better at 6 months: 1 study, N = 63, RR = 0.58, 95%CI 0.39 to 0.87, *p* = 0.009 Insufficient care or maltreatment by family at 6 months: 1 study, N = 77, RR = 0.53, 95%CI 0.22 to 1.24, *p* = 0.14 Insufficient care or maltreatment by family at 9 months: 1 study, N = 34, RR = 0.39, 95%CI 0.08 to 1.87, *p* = 0.24 Coping effectiveness at 6 months: 1 study, N = 49, WMD = -0.50, 95%CI -1.85 to 0.85, *p* = 0.47 Family Support Service Index at 3 months: 1 study, N = 48, WMD = 0.86, 95%CI 0.21 to 1.51, *p* = 0.0097 Family Assessment Device at 3 months: 1 study, N = 48, WMD = -6.56, 95%CI -10.50 to -2.62, *p* = 0.0011

Family Burden Interview Schedule at 3 months: 1 study, N = 48, WMD = -7.01, 95%CI -10.77 to -3.25, *p* = 0.00025 Family Burden at 12 months: 1 study, N = 51, RR = 0.53, 95%CI 0.21 to 1.37, *p* = 0.19 Family Burden at 0-18 months: 1 study, N = 60, WMD = -0.40, 95%CI -0.71 to -0.09, *p* = 0.010 Family Burden at 2 years: 1 study, N = 51, RR = 1.92, 95%CI 0.19 to 19.90, *p* = 0.58	
Family outcome: Expressed emotion	
A significant medium-sized effect of family intervention on reducing levels of family over-involvement, criticism, hostility and high expressed emotion; Overall levels: 1 study, N = 75, RR = 0.90, 95%CI 0.68 to 1.19, *p* = 0.46 Family over-involvement: 1 study, N = 63, RR = 0.40, 95%CI 0.22 to 0.73, *p* = 0.0027 Criticism: 1 study, N = 63, RR = 0.44, 95%CI 0.24 to 0.81, *p* = 0.0082 Hostility: 1 study, N = 87, RR = 0.35, 95%CI 0.18 to 0.66, *p* = 0.0013 High family expressed emotion: 3 studies, N = 164, RR = 0.68, 95%CI 0.54 to 0.86, *p* = 0.0013 Q = 6.24, *p* = 0.04, I^2 = 68% Warmth: 1 study, N = 24, WMD = 0.47, 95%CI -0.29 to 1.23, *p* = 0.23	
Quality of Life and Insight: Average endpoint score	
A significant effect of family intervention for increasing patients' quality of life scores at 2 years; At 1 year: 1 study, N = 50, WMD = -5.05, 95%CI -15.44 to 5.34, *p* = 0.34 At 2 years: 1 study, N = 213, WMD = 19.18, 95%CI 9.78 to 28.58, *p* = 0.000063 *No differences in insight;* Pre- to post-treatment: 1 study, N = 37, WMD = 0.02, 95%CI -1.03 to 1.07, *p* = 0.97 At 1 year: 1 study, N = 40, WMD = 0.94, 95%CI -0.50 to 2.38, *p* = 0.20	
Consistency in results	Consistent where applicable except hospital admission, relapse, BPRS change scores, global state and general social function.
Precision in results	Imprecise for hospital admission, relapse at 0-6 months, global state at 9 months, study attrition, death, employment, work ability at 9 months, imprisonment, coping, maltreatment, family burden, and expressed emotion. Unable to assess WMDs; not standardised measure.
Directness of results	Direct
Comparison 2	**Behavioural family based interventions vs. supportive family based interventions (>5 sessions).**

Family intervention

Summary of evidence	**Moderate quality evidence (precise, direct, large sample) suggests no additional benefit of behaviourally focused family interventions for global state or study compliance compared to supportive family interventions.**
Global state: Unstable (0-6 months)	
No differences between groups; 0-6 months of treatment: 1 study, N = 528, RR = 1.08, 95%CI 0.88 to 1.33, *p* = 0.45	
Compliance: Leaving the study early and/or poor compliance with treatment protocol	
No differences between groups; At 30 months: 1 study, N = 528, RR = 0.96, 95%CI 0.88 to 1.05, *p* = 0.42	
Consistency in results	Not applicable, one study.
Precision in results	Precise for compliance only.
Directness of results	Direct
Comparison 3	**Group family based interventions vs. individual family based interventions (>5 sessions).**
Summary of evidence	**Moderate to low quality evidence (moderate to large samples, direct, inconsistent, imprecise) showed no difference for reducing relapse, but favours individual intervention for living independently, although this outcome is of low quality due to very small sample.**
Global state: Relapse	
No differences between groups; At 7-12 months: 2 studies, N = 195, RR = 0.70, 95%CI 0.41 to 1.22, *p* = 0.21, Q = 3.67, *p* = 0.06, I^2 = 73% At 19-24 months: 3 studies, N = 197, RR = 0.71, 95%CI 0.48 to 1.05, *p* = 0.088, Q = 0.65, *p* = 0.42, I^2 = 0% More than one relapse at 19-24 months: 1 study, N = 172, RR = 0.71, 95%CI 0.34 to 1.50, *p* = 0.38	
Compliance with treatment	

No difference in compliance with treatment; 2 studies, N = 195, RR = 1.35, 95%CI 0.84 to 2.17, *p* = 0.21, Q = 2.23, *p* = 0.14, I^2 = 55% *No difference in compliance with medication;* 1 study, N = 172, RR = 1.00, 95%CI 0.50 to 1.99, *p* = 0.99
Living independently
A significant, large effect favouring individual family intervention over group family intervention for the ability to live independently; 1 study, N = 23, RR = 2.18, 95%CI 1.09 to 4.37, *p* = 0.028
Family expressed emotion
No differences between groups at 2 years; 1 study, N = 23, RR = 0.94, 95%CI 0.45 to 1.92, *p* = 0.86

Consistency in results	Significant heterogeneity reported for relapse and compliance, NA for other outcomes (one study only).
Precision in results	Imprecise for all outcomes.
Directness of results	Direct

Pitschel-Walz G, Leucht S, Bauml J, Kissling W, Engel RR

The effect of family interventions on relapse and rehospitalization in schizophrenia--a meta-analysis

Schizophrenia Bulletin 2001; 27(1): 73-92

View review abstract online

Comparison 1	**All family interventions (psychoeducation or therapeutic, duration range 2 weeks to 4 years) vs. standard care.**
Summary of evidence	**High quality evidence (medium to large samples, consistent, precise, direct) suggests family intervention reduces relapse rates. Longer treatment duration has greater effect. Benefit was seen regardless of intervention type and criteria for relapse.**
Relapse rates	

Family intervention

A significant reduction in relapse rates with family intervention at 2 years; 14 studies, N = 874, ES = 0.20, 95%CI 0.14 to 0.27, $p < 0.0001$ *Long-term treatment had a larger effect on relapse rates than short-term treatment;* Short-term: N = 571, ES = 0.14, 95%CI 0.06 to 0.22, $p < 0.005$, Q = 3.83, $p > 0.5$ Long-term: N = 287, ES = 0.3, 95%CI 0.19 to 0.41, $p < 0.0001$, Q = 2.72, $p > 0.5$ *No differences according to intervention type;* Psychoeducation: N = 648, ES = 0.18, 95%CI 0.11 to 0.26, $p < 0.0001$, Q = 11.1, $p > 0.1$ Therapeutic: N = 210, ES = 0.23, 95%CI 0.1 to 0.36, Q = 0.65, $p > 0.5$ *No differences according to relapse criteria;* Symptom severity: N = 329, ES = 0.2, 95%CI 0.09 to 0.30, $p < 0.001$, Q = 3.13, $p > 0.5$ Rehospitalisation: N = 529, ES = 0.19, 95%CI 0.11 to 0.28, $p < 0.0001$, Q = 9.03, $p > 0.1$ *No differences according to sample selection;* Schizophrenia alone: N = 521, ES = 0.24, 95%CI 0.17 to 0.29, $p < 0.0001$, Q = 8.97, $p > 0.5$ Mixed sample: N = 347, ES = 0.12, 95%CI 0.02 to 0.23, $p < 0.05$, Q = 0.12, $p > 0.5$	
Consistency in results	Consistent
Precision in results	Precise
Directness of results	Direct
Comparison 2	**Family interventions (psychoeducation or therapeutic, duration range 2 weeks to 4 years) combined with individual patient interventions (including psychoeducation, social skills training, supportive therapy or cognitive therapy) vs. standard care.**
Summary of evidence	**Moderate to high quality evidence (large sample, precise, unable to assess consistency, direct) suggests family intervention combined with patient intervention is more effective than usual care for reducing relapse rates.**
Relapse rates	
A significant effect of fewer relapses with family intervention + individual patient therapy; 5 studies, N = 523, ES = 0.18, 95%CI 0.16 to 0.29, $p < 0.0001$ In the first year: ES = 0.13, 95%CI 0.04 to 0.25, $p = 0.03$ In the second year: ES = 0.23, 95%CI 0.12 to 0.33, $p < 0.0001$	
Consistency in results	No measure of heterogeneity reported.

Family intervention

Precision in results	Precise
Directness of results	Direct
Comparison 3	**Family interventions (psychoeducation or therapeutic, duration range 2 weeks to 4 years) vs. individual patient interventions (including psychoeducation, social skills training, supportive therapy or cognitive therapy).**
Summary of evidence	**Moderate quality evidence (large sample, inconsistent, precise, indirect) suggests in the short term family intervention benefits relapse rates but in the long term individual therapy may be more beneficial.**
Relapse rates	
No differences between groups overall; 7 studies, N = 407, ES = 0.01, 95%CI -0.09 to 0.11, $p > 0.5$, Q = 35.1, $p < 0.001$ *No differences in the first year;* ES = 0.0, 95%CI -0.13 to 0.12, $p = 10.0$, Q = 14.6, $p < 0.001$ *A significant effect of fewer relapses with family intervention in the second year;* ES = 0.46, 95%CI 0.26 to 0.62, $p < 0.0001$, Q = 6.09, $p < 0.05$ *A significant effect of fewer relapses with family intervention in the third year;* ES = -0.28, 95%CI -0.48 to 0.05, $p < 0.0001$	
Consistency in results	Inconsistent
Precision in results	Precise
Directness of results	Indirect comparisons
Comparison 4	**Family interventions (psychoeducation or therapeutic, duration range 2 weeks to 4 years) combined with individual patient interventions (including psychoeducation, social skills training, supportive therapy or cognitive therapy) vs. individual patient interventions.**
Summary of evidence	**Moderate to low quality evidence (medium-sized samples, unable to assess consistency, precise, indirect) suggests family intervention combined with individual therapy did not provide significant benefit over individual therapy alone.**
Relapse rates	

No differences between groups; 4 studies, N = 215, ES = 0.04, 95%CI -0.10 to 0.17, $p > 0.5$	
Consistency in results	No measure of heterogeneity is reported.
Precision in results	Precise
Directness of results	Indirect comparisons
Comparison 5	**Family interventions (psychoeducation or therapeutic, duration range 2 weeks to 4 years) of higher intensity vs. family interventions of lower intensity.**
Summary of evidence	**Moderate quality evidence (large sample, precise, unable to assess consistency, direct) suggests more intensive family intervention provided greater reduction in relapse rates than less intensive family intervention.**
Relapse rates	
A significant effect of fewer relapses with family intervention; 8 studies, N = 659, ES = 0.10, 95%CI 0.03 to 0.18, $p < 0.01$	
Consistency in results	No measure of heterogeneity is reported.
Precision in results	Precise
Directness of results	Direct

Pilling S, Bebbington P, Kuipers E, Garety P, Geddes J, Orbach G, Morgan C

Psychological treatments in schizophrenia: I. Meta-analysis of family intervention and cognitive behaviour therapy

Psychological Medicine 2002; 32(5): 763-782

View review abstract online

Comparison 1	**Family intervention vs. other psychosocial therapy.**

Family intervention

Summary of evidence	**Moderate quality evidence (large samples, indirect, mostly consistent, imprecise) suggests family intervention improved relapse rates compared to all other psychosocial therapies. Family intervention reduced readmission rates but had no effect on dropout rates, expressed emotion or medication compliance.**
Relapse rates	
A significant effect of fewer relapses with family intervention; In the first 12 months Compared to all other treatments: 11 studies, N = 729, OR = 0.52, 95%CI 0.31 to 0.89, NNT 8, Q = 23.04, $p < 0.01$ Compared to other active treatments: 5 studies, N = 357, OR = 0.67, 95%CI 0.71 to 0.31, NNT -23, Q = 10.50, $p = 0.03$ In the first 1-2 years *Compared to all other treatments:* 6 studies, N = 264, OR = 0.57, 95%CI 0.18 to 1.82, NNT 13, Q = 17.39, $p < 0.01$ Single family treatment only vs. all other treatments: 5 studies, N = 148, OR = 0.42, 95%CI 0.11 to 1.64, NNT 6, Q = 9.44, $p = 0.06$	
Readmission rates	
A significant effect fewer readmissions with family intervention; In the first 12 months Compared to all other treatments: 4 studies, N = 242, OR = 0.38, 95%CI 0.10 to 1.40, NNT 15, Q = 11.79, $p < 0.01$ Single family treatments vs. all other treatments: 3 studies, N = 143, OR = 0.22, 95%CI 0.09 to 0.51, NNT 3, Q = 0.76, $p = 0.68$ In the first 2 years Compared to all other treatments: 6 studies, N = 638, OR = 0.47, 95%CI 0.23 to 0.96, NNT 11, Q = 15.60, $p < 0.01$ Single family interventions vs. all other treatments: 3 studies, N = 187, OR = 0.24, 95%CI 0.12 to 0.47, NNT 4, Q = 1.18, $p = 0.55$	
Treatment adherence	

No differences between groups; Compared to all other treatments: 16 studies, N = 1284, OR = 1.06, 95%CI 0.76 to 1.48, Q = 17.60, *p* = 0.28 Compared to other active therapy: 6 studies, N = 641, OR = 0.64, 95%CI 0.34 to 1.20, Q = 10.04, *p* = 0.07 Single family treatments vs. other active therapy: 4 studies, N = 423, OR = 0.62, 95%CI 0.30 to 1.31, Q = 4.36, *p* = 0.22 Group family treatments vs. active treatments: 2 studies, N = 218, OR = 0.53, 95%CI 0.08 to 3.46, Q = 1.48, *p* = 0.23 Single family treatments compared to all other treatments: 5 studies, N = 393, OR = 0.63, 95%CI 0.40 to 1.01, Q = 2.48, *p* = 0.65	
Expressed emotion	
No differences between groups; Single family treatments compared to all other treatments: 4 studies, N = 114, OR = 0.90, 95%CI 0.48 to 1.72, Q = 3.08, *p* = 0.38	
Consistency in results	Consistent for all except relapse and readmission – compared to all other interventions.
Precision in results	Imprecise for all except readmission – single family intervention.
Directness of results	Indirect comparisons
Comparison 2	**Family intervention vs. standard care.**
Summary of evidence	**Moderate quality evidence (large samples, direct, consistent, imprecise) suggests family intervention improves relapse rates compared to standard care in the first year (though effect was not sustained in the long term). Group family intervention was more effective than standard care for reducing family burden of the illness.**
Relapse rates	
A significant, medium-sized effect of fewer relapses in the first 12 months of treatment with family intervention; 6 studies, N = 355 patients, OR = 0.37, 95%CI 0.23 to 0.60, no *p* value reported, NNT 6, Q = 4.31, *p* = 0.51 *No differences between groups by 4-15 months after treatment (single family treatment only);* 4 studies, N = 228 patients, OR = 0.70, 95%CI 0.27 to 1.76, no *p* value reported, NNT 19, Q = 7.0, *p* = 0.07	

Suicide and dropout rates	
No differences between groups for suicide rates; 6 studies, N = 1284 patients, OR = 0.88, 95%CI 0.33 to 2.32, , no *p* value reported, Q = 5.10, *p* = 0.27 *No differences between groups for dropout rates;* 10 studies, N = 643 patients, OR = 1.24, 95%CI 0.72 to 2.14, no *p* value reported, Q = 10.52, *p* = 0.31	
Family burden	
A significant effect of reduced burden with single family intervention, and no effect of group family treatment; Single family treatment: 2 studies, N = 105, WMD = -0.42, 95%CI -0.88 to -0.03, no *p* value reported, Q = 1.41, *p* = 0.24 Group family treatment: 3 studies, N = 146, WMD = -0.14, 95%CI -0.76 to 0.47, no *p* value reported, Q = 6.88, *p* = 0.03	
Consistency in results	Consistent for all except readmission rates at 12 months and 2 years.
Precision in results	Imprecise for all except relapse at 12 months and readmission – single family intervention.
Directness of results	Direct

Zygmunt A, Olfson M, Boyer CA, Mechanic D

Interventions to improve medication adherence in schizophrenia

American Journal of Psychiatry 2002; 159(10): 1653-64

View review abstract online

Comparison	**Family intervention (with or without patient present, duration 4-24 months) specifically for medication adherence vs. various comparison groups, including standard care, psychoeducation, or case management.**
Summary of evidence	**Moderate to low quality evidence (large sample, unable to assess consistency or precision, indirect) suggests unclear overall benefit of family interventions for improving medication**

Family intervention

	adherence.
Medication adherence	
12 studies (N = 1,431) investigated family interventions, employing psychoeducational, behavioural and problem solving strategies compared to varying control conditions. 3 of 12 studies reported significant improvements in medication adherence for participants in family interventions compared to controls. One of these 3 studies reported improvements for family behavioural management compared to intensive case management. Another reported improvements for culturally modified behavioural family therapy (modified to emphasize close monitoring of adherence, reinforcement of the care provider's role in supervising medication, practical information about taking medications, and respect for prevailing cultural beliefs concerning mental illness) compared to standard behavioural family therapy. The third reported improvements for family psychoeducation compared to standard care. The remaining 9 studies all varied in their comparisons.	
Consistency in results	Unable to assess; no measure of consistency is reported.
Precision in results	Unable to assess; no measure of precision is reported.
Directness of results	Indirect comparisons.

Explanation of acronyms

BPRS = Brief Psychiatric Rating Scale, CI = Confidence Interval, *d* = Cohen's *d* and *g* = Hedges' *g* = standardized mean differences (see below for interpretation of effect size), ES = effect size, GAF = Global Assessment of Function Scale, I^2 = the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance), N = number of participants, NNT = 'number needed to treat' statistic, OR = odds ratio, *p* = statistical probability of obtaining that result ($p < 0.05$ generally regarded as significant), PANSS = Positive and Negative Syndrome Scale, Q = Q statistic (chi-square) for the test of heterogeneity, Q_b = Q statistic for between group heterogeneity, RCT = randomized controlled trial, RR = risk ratio, SCL-90 = Symptom Checklist-90, SMD = standardised mean difference, vs. = versus, WMD = weighted mean difference

Family intervention

Explanation of technical terms

* Bias has the potential to affect reviews of both RCT and observational studies. Forms of bias include; reporting bias – selective reporting of results; publication bias - trials that are not formally published tend to show less effect than published trials, further if there are statistically significant differences between groups in a trial, these trial results tend to get published before those of trials without significant differences; language bias – only including English language reports; funding bias - source of funding for the primary research with selective reporting of results within primary studies; outcome variable selection bias; database bias - including reports from some databases and not others; citation bias - preferential citation of authors. Trials can also be subject to bias when evaluators are not blind to treatment condition and selection bias of participants if trial samples are small[11].

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† Different effect measures are reported by different reviews.

Weighted mean difference scores refer to mean differences between treatment and comparison groups after treatment (or occasionally pre to post treatment) and in a randomised trial there is an assumption that both groups are comparable on this measure prior to treatment. Standardised mean differences are divided by the pooled standard deviation (or the standard deviation of one group when groups are homogenous) which allows results from different scales to be combined and compared. Each study's mean difference is then given a weighting depending on the size of the sample and the variability in the data. Less than 0.4 represents a small effect, around 0.5 a medium effect, and over 0.8 represents a large effect[11].

Odds ratio (OR) or relative risk (RR) refers to the probability of a reduction (< 1) or an increase (> 1) in a particular outcome in a treatment group, or a group exposed to a risk factor, relative to the comparison group. For example, a RR of 0.75 translates to a reduction in risk of an outcome of 25% relative to those not receiving the treatment or not exposed to the risk factor. Conversely, a RR of 1.25 translates to an increased risk of 25% relative to those not receiving treatment or not having been exposed to a risk factor. A RR or OR of 1.00 means there is no difference between groups. A medium effect is considered if RR > 2 or < 0.5 and a large effect if RR > 5 or < 0.2[12]. lnOR stands for logarithmic OR where a lnOR of 0 shows no difference between groups. Hazard ratios measure the effect of an explanatory variable on the hazard or risk of an event.

Prevalence refers to how many existing cases there are at a particular point in time. Incidence refers to how many new cases there are per population in a specified time period. Incidence is usually reported as the number of new cases per 100,000 people per year. Alternatively some studies present the number of new cases that have accumulated over several years against a person-years denominator. This denominator is the sum of individual units of time that the persons in the population are at risk of becoming a case. It takes into account the size of the underlying population sample and its age structure over the duration of observation.

Reliability and validity refers to how accurate the instrument is. Sensitivity is the proportion of actual positives that are correctly identified (100% sensitivity = correct identification of all actual positives) and specificity is the proportion of negatives that are correctly

identified (100% specificity = not identifying anyone as positive if they are truly not).

Correlation coefficients (eg, r) indicate the strength of association or relationship between variables. They are an indication of prediction, but do not confirm causality due to possible and often unforseen confounding variables. An r of 0.10 represents a weak association, 0.25 a medium association and 0.40 and over represents a strong association. Unstandardised (*b*) regression coefficients indicate the average change in the dependent variable associated with a 1 unit change in the dependent variable, statistically controlling for the other independent variables. Standardised regression coefficients represent the change being in units of standard deviations to allow comparison across different scales.

‡ Inconsistency refers to differing estimates of effect across studies (i.e. heterogeneity or variability in results) that is not explained by subgroup analyses and therefore reduces confidence in the effect estimate. I^2 is the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance) - 0% to 40%: heterogeneity might not be important, 30% to 60%: may represent moderate heterogeneity, 50% to 90%: may represent substantial heterogeneity and 75% to 100%: considerable heterogeneity. I^2 can be calculated from Q (chi-square) for the test of heterogeneity with the following formula[11];

$$I^2 = \left(\frac{Q - df}{Q}\right) \times 100\%$$

§ Imprecision refers to wide confidence intervals indicating a lack of confidence in the effect estimate. Based on GRADE recommendations, a result for continuous data (standardised mean differences, not weighted mean differences) is considered imprecise if the upper or lower confidence limit crosses an effect size of 0.5 in either direction, and for binary and correlation data, an effect size of 0.25. GRADE also recommends downgrading the evidence when sample size is smaller than 300 (for binary data) and 400 (for continuous data), although for some topics, these criteria should be relaxed[13].

‖ Indirectness of comparison occurs when a comparison of intervention A versus B is not available but A was compared with C and B was compared with C that allows indirect comparisons of the magnitude of effect of A versus B. Indirectness of population, comparator and/or outcome can also occur when the available evidence regarding a particular population, intervention, comparator, or outcome is not available and is therefore inferred from available evidence. These inferred treatment effect sizes are of lower quality than those gained from head-to-head comparisons of A and B.

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