

The involvement of family members in the treatment of patients with schizophrenia

Chen Zhang, PhD, MD

Address

Schizophrenia Program, Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, 600 Wan Ping Nan Road, Shanghai, 200030, China
Email: zhangchen645@gmail.com

Published online: 4 April 2016

© Springer International Publishing AG 2016

This article is part of the Topical Collection on *Schizophrenia and Other Psychotic Disorders*

Keywords Schizophrenia · Family members · Compliance · Rehabilitation · Psychoeducation

Opinion statement

Schizophrenia is a severe, chronic, and disabling mental disorder characterized by a distinct cluster of symptoms. A variety of treatment approaches have been used, including antipsychotic medication, functioning rehabilitation, and family psychoeducation. Antipsychotic medications are effective in relieving schizophrenic symptoms, but its discontinuation often results in high relapse rates. Literature showed that family intervention in functioning rehabilitation is helpful for the schizophrenia patients. In addition, family psychoeducation is useful to rebuild the confidence of patients and their family members in an optimal way and enable them to cope with the illness together. It is known that family is the fundamental caregiver and provides important physical and mental support to the patients. Ongoing research into the role of family members in the treatment of schizophrenia is being conducted, and there are a number of literatures showing the advantages of family members participating in the treatment of schizophrenia.

Introduction

Schizophrenia is a severe and common mental disorder characterized by abnormal social behavior and failure to recognize what is real. This disorder is often chronic, recurrent, disabling, and debilitating. In an updated information on the epidemiology of schizophrenia in general populations, the median estimate was 0.33 % and the median estimate of lifetime prevalence was 0.48 % [1]. The heavy disease burden makes schizophrenia a significant health care

issue in terms of sheer numbers. With the development of community mental health service provision, more and more schizophrenia patients return to community for rehabilitation after receiving acute phase treatment in mental hospitals. This service change makes family members get involve in the treatment of patients with schizophrenia. Therefore, active and valid involvement of family members would be helpful to the treatment of patients with schizophrenia.

Medication compliance

Antipsychotic medication represents the cornerstone of current therapeutic strategy for schizophrenia, since first-generation antipsychotics (FGAs) were found to have specific therapeutic action against positive symptoms in the 1950s. However, extrapyramidal signs and tardive dyskinesia can be often seen in schizophrenia patients receiving long-term FGA treatment, which is linked with poor quality of life and social stigmatizing [2]. In order to avoid the side-effect profile of FGA, a number of second-generation antipsychotics (SGA) have been developed in 1990s. Although SGA are thought to be safer than FGA, they still have severe side effects, including weight gain, increased risk of stroke, sudden cardiac death, and diabetes. It is debating about the efficacy and side effect profile of FGA and SGA. From January 2001 to December 2004, the National Institute of Mental Health (NIMH) initiates the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) schizophrenia project to determine the comparative effectiveness of antipsychotic medications in typical clinical settings and situations. The philosophy of CATIE study was to evaluate controlled treatment with antipsychotic medications for up to 18 months, mirroring the “real-world” treatment conditions. Overall, 74 % of patients discontinued the study medication before the endpoint [3]. This may partially account for the reasons why there is a high rate of relapse and readmission in patients with schizophrenia.

Schizophrenia is a lifelong condition; maintenance of antipsychotic medications over a long period has become the standard for suppression of symptoms, preventing relapse, improving quality of life, and supporting engagement in psychosocial therapy [4, 5]. However, a significant challenge in the maintenance treatment of schizophrenia is the poor rate of compliance. Current literature has indicated that poor medication adherence complicates the treatment of schizophrenia at all illness stages [6], and a literature review concluded an average rate of adherence of 50 % in patients with schizophrenia [7]. There is a consensus that poor adherence results in poorer outcomes, and conversely, effective interventions that enhance compliance to antipsychotic treatment improves prognosis [7].

Emerging evidence shows that a number of factors influence compliance to antipsychotic treatment in patients with schizophrenia, such as family management. Early literature indicated that compliance was substantially higher in patients whose medication was supervised by family members [8]. Recently, we performed a 24-month perspective real-world study to evaluate the effectiveness of the most frequently prescribed antipsychotic drugs among patients in the community settings after their first hospital discharge for schizophrenia [9••]. All participants were registered in a case management program run by the Shanghai Center for Disease Control (SCDC) of China, who received regular monitoring every month by study doctors during the follow-up period, and family management was involved in the supervision of antipsychotic treatment. Interestingly, our results showed a 10 % of discontinuation during the follow-up period, compared with 74 % of discontinuation in CATIE study, which is attributed to the case management program involving monthly visits by study doctors and family supervision of medication. There are a number of factors associated with compliance, such as attitudes towards health and taking medication, based on previous experience, cultural factors and socioeconomic status [10]. Social supports, especially the support of family in assisting with medication taking, have positive association with compliance [11,

12]. Therefore, the involvement of family members in the antipsychotic management is helpful to enhance compliance and prevent relapse.

Functioning rehabilitation

Cognitive dysfunction is both a chronic disabling feature of schizophrenia and a side effect of FGA [13]. Accumulating data indicates that cognitive impairment is among the most important factors in contributing to the social deficits and the functional outcome for schizophrenia patients [14]. There is an increasing acknowledgement that antipsychotic medication on its own is not sufficient enough to obtain the best outcome in this disabling condition [15]. To date, trials of cognitive medications in schizophrenia have not provided sufficiently satisfactory results. While unfortunately, these results have highlighted the idea that cognitive enrichment strategies may be necessary to drive meaningful clinical improvements among patients with schizophrenia [16]. As such, finding viable methods of cognitive improvement has become an increasingly important target for research on schizophrenia treatment [17]. There are around 80 % of patients with the disease struggling with a variety of neurocognitive deficiencies, including speed of processing, attention/vigilance, working memory, verbal learning, reasoning, and problem solving [18]. A growing number of studies have indicated that cognitive dysfunction is among the most important factors in contributing to the social deficits and the functional outcome for schizophrenia patients [14]. Moreover, our previous work demonstrated a wide range of cognitive functions substantially impaired among antipsychotic-naïve patients with first-episode schizophrenia [19, 20], which supports the view that cognitive impairment is at the core of this disorder [21, 22]. Collectively, these different lines of evidence only highlight some of the reasons why finding more effective methods of cognitive improvement has become an increasingly important target for research into schizophrenia and schizophrenia treatment [17]. From a pharmacological point of view, neither typical nor atypical antipsychotics have shown much promise in their efficacy at combating the cognitive impairment that many schizophrenia patients face [23, 24]. Accordingly, researchers and clinicians have pursued individual interventions aside from medication, including computerized cognitive training [25, 26], social skill training [27], and vocational rehabilitation training [28], all of which have been respectively reported to possess certain advantages over more antipsychotic medication. More interestingly, another encouraging approach in recent years has been modifying the living environments of patients with schizophrenia. Friedman-Yakoobian et al. [29] developed a family-based cognitive adaptation strategy to train family members how to implement and provide the necessary environmental supports for patients to compensate for their cognitive impairments. These findings showed that family intervention may be feasible treatment options for the cognitive dysfunction that accompanies schizophrenia, and also that both individual and family interventions have the potential to be effective cognitive rehabilitation options. Recently, we designed a comprehensive family therapy (CFT) on patients and their family members [30••]. The protocol of CFT includes social skills individualized training (SSIT) to the patients, which is a therapy based on “social and independent living skills” outlined by Liberman et al. [31] including five modules: medication management, symptom management, community re-entry, recreation for leisure, and social independent living skills; and family

intervention to the family members, in which psychoeducation was provided by psychiatric health professionals to the patients' family members, including education regarding the causes, symptoms, treatments, diagnoses, treatment of schizophrenia and common adverse effects of antipsychotics, and prognosis and prevention of schizophrenia. After the 18-month follow-up visits, our results showed that the dropout rate (8.6 % at endpoint) of the study is considerably low, implying that CFT may be an acceptable paradigm for schizophrenia patients to improve cognitive function. The primary findings showed that CFT resulted in significant improvement in cognitive function and that this improvement was maintained at least over an interval of 18 months. One advantage in this work is the involvement of family members in the treatment of patients with schizophrenia. First, family intervention has been considered as an important part of modern treatment options besides drugs in schizophrenia treatment and care [32]. Second, family intervention promotes the development of the coping abilities of both patients and their family members by providing information about treatment and care of schizophrenia [33]. Third, family intervention has been proven to be effective in treating people with schizophrenia within China [34•], where majority of patients with schizophrenia traditionally are cared for by their family members at home [35], and that is also the case in many other developing countries [36]. The findings suggest that integrated intervention approach reached the goal of persistent improving cognitive function in patients with schizophrenia in community. These results provide evidence that the paradigm of family intervention is practical in certain settings. More importantly, these findings suggest that this combination therapy results in better efficacy in improving cognitive functions for schizophrenia patients, as compared with only taking medications alone.

Family psychoeducation

When schizophrenia patients return to community for treatment, family is the fundamental caregiver and provides important physical and mental support to the patients. Therefore, the involvement of family members is obviously important to the treatment of patients with schizophrenia. The quality of their relationships would greatly impact on the prognosis. However, there are a number of difficulties for the family caregivers to handle, such as patients' unstable mental condition, stigma, and negative emotion of the caregivers. Data showed that schizophrenia patients' caregivers frequently experience burden and psychological distress [37]. Hence, targeting the schizophrenia patients and their caregivers has been one of the most important tasks of mental health service, in which the schizophrenia family can receive formal support from mental health professionals through information sharing and collaborative interactions with family members and informal support from other family members, support group participation, and contributions from the relative with mental illness [38]. Psychoeducation is an important part of the mental health service, which provides psychosocial interventions for the families of schizophrenia patients and to offer information and support to optimize the treatment outcomes [39]. Psychoeducation is defined as systematic, structured, didactic information on the illness and its treatment, including integrating emotional aspects in order to rebuild the confidence of patients and their family members in an optimal way and enable them to cope with the illness together

[40]. A line of evidence strongly supported that family psychoeducation for patients with schizophrenia has become an effective clinical practice in the treatment of schizophrenia [41–43]. The benefits of family psychoeducation for the patients with schizophrenia include improving the understanding of mental illness, increasing the quality of life, reducing relapse rates, and helping the families and patients to better cope with the illness [44–47].

The effects of psychoeducation programs may last for a long time. Bauml et al. [48] found that even brief, eight-session psychoeducation programs have statistically significant, clinically important, and long-term effects for schizophrenia patients and their families in a 7-year follow-up of the Psychosis Information Project Study (PIP study). Aguglia et al. [49] reported an eight-session, add-on psychoeducation program for schizophrenia patients and their families resulting in statistically significantly hospitalizations and days in the hospital after 1 year compared with a control group receiving standard treatment.

Common strategies in psychoeducational approaches for schizophrenia include engagement of the family as an ally in the treatment process and presentation of detailed information about the illness and its management, such as improving communication, problem solving, medication compliance and crisis intervention, and developing social support networks and coping skill [50]. Some new family psychoeducation approaches have been developed, such as multiple-family group [44]. This approach format consists of a group of six to eight families, including the identified patients. There are two clinicians directing the group. A formal multisite evaluation of the effectiveness of the multiple-family group approach with a large sample indicated that compared with the single-family format, the multiple-family group approach significantly extended remission over a 4-year period [51].

Another new approach of family psychoeducation for patients with schizophrenia is developed by Pollio et al. [52], in which compact format of psychoeducation is provide for families with severe mental illness, including schizophrenia, bipolar disorder, major depression, and other affective disorders. There are three lectures initiating the 1-day psychoeducation workshop, including descriptive and diagnostic information on schizophrenia, biological basis of mental illness, including neurochemistry and genetics, and medication and other treatment options. Informal discussion was encouraged during the lunch break, and in the afternoon, two breakout sessions with a brief didactic presentation with following discussion on “area resources,” “success stories,” “ask the doc,” “religion,” and “legal rights” took place. The evaluation results showed that short-term goals of the workshops were achieved throughout: from workshop start to finish, “control of daily life,” “effectiveness in crisis situation,” “knowledge on obtaining community resources,” and “knowledge about mental illness and treatment” significantly increased, whereas “feelings of guilt” decreased. It seems that the families can benefit from the short-term workshops and strengthen their family contact in such intensive services. The implementation of such short-term psychoeducation for families with different diagnosis in real-world settings seems to be much easier than the implementation of diagnosis-specific long-term psychoeducation [52, 53].

Conclusion

Family members are the fundamental caregivers and provide important physical and mental support to the patients with schizophrenia. High rates of

discontinuation of antipsychotic medication prevent patients with schizophrenia from remission and increase relapse. Family members can help the patients to enhance medication compliance and reduce discontinuation rates. Clinical practice showed that family interventions such as functioning rehabilitation and family psychoeducation result in better efficacy in improving cognitive functions for schizophrenia patients and increasing the quality of life, reducing relapse rates, and helping the families and patients to better cope with the illness. Current knowledge provides strong evidence for involvement of family members in the treatment of patients with schizophrenia to have advantages of helping the patients to improve therapeutic effects. Future work is required to formulate the guidelines and strategies to involve family members in the various stages of schizophrenia treatment.

Acknowledgments

This work was supported by the National Natural Science Foundation of China (81471358), the Shanghai Science and Technology Commission Foundation (14411969000), the Shanghai Municipal Education Commission—Gaofeng Clinical Medicine Grant Support (20152530), the Shanghai Municipal Commission of Health and Family Planning Foundation (201540029), and the Shanghai Mental Health Center Foundation (2014-FX-03).

Compliance with Ethical Standards

Conflict of Interest

Chen Zhang declares that he has no conflict of interest.

Human and Animal Rights and Informed Consent

This article does not contain any studies with human or animal subjects performed by the author.

References and Recommended Reading

Papers of particular interest, published recently, have been highlighted as:

- Of importance
 - Of major importance
1. Simeone JC, Ward AJ, Rotella P, Collins J, Windisch R. An evaluation of variation in published estimates of schizophrenia prevalence from 1990 horizontal line 2013: a systematic literature review. *BMC Psychiatry*. 2015;15:193.
 2. Correll CU, Leucht S, Kane JM. Lower risk for tardive dyskinesia associated with second-generation antipsychotics: a systematic review of 1-year studies. *Am J Psychiatry*. 2004;161(3):414–25.
 3. Lieberman JA, Stroup TS, McEvoy JP, Swartz MS, Rosenheck RA, Perkins DO, et al. Effectiveness of antipsychotic drugs in patients with chronic schizophrenia. *N Engl J Med*. 2005;353(12):1209–23.
 4. Kane JM, Davis JM, Schooler N, Marder S, Casey D, Brauzer B, et al. A multidose study of haloperidol decanoate in the maintenance treatment of schizophrenia. *Am J Psychiatry*. 2002;159(4):554–60.

5. Barnes TR. Evidence-based guidelines for the pharmacological treatment of schizophrenia: recommendations from the British Association for Psychopharmacology. *J Psychopharmacol*. 2011;25(5):567–620.
 6. Robinson DG, Woerner MG, Alvir JM, Bilder RM, Hinrichsen GA, Lieberman JA. Predictors of medication discontinuation by patients with first-episode schizophrenia and schizoaffective disorder. *Schizophr Res*. 2002;57(2–3):209–19.
 7. Gilmer TP, Dolder CR, Lacro JP, Folsom DP, Lindamer L, Garcia P, et al. Adherence to treatment with antipsychotic medication and health care costs among Medicaid beneficiaries with schizophrenia. *Am J Psychiatry*. 2004;161(4):692–9.
 8. McEvoy JP, Apperson LJ, Appelbaum PS, Ortlip P, Breckosky J, Hammill K, et al. Insight in schizophrenia. Its relationship to acute psychopathology. *J Nerv Ment Dis*. 1989;177(1):43–7.
 - 9.●● Zhang C, Chen MJ, Wu GJ, Wang ZW, Rao SZ, Zhang Y, et al. Effectiveness of antipsychotic drugs for 24-month maintenance treatment in first-episode schizophrenia: evidence from a community-based real-world study. *J Clin Psychiatry*. 2016. In press.
- This prospective study aims to assess the effectiveness of most frequently prescribed antipsychotic drugs in the maintenance treatment of schizophrenia. It suggests that family participation is an important factor for medication compliance in maintenance treatment of schizophrenia.
10. Lacro JP, Dunn LB, Dolder CR, Leckband SG, Jeste DV. Prevalence of and risk factors for medication nonadherence in patients with schizophrenia: a comprehensive review of recent literature. *J Clin Psychiatry*. 2002;63(10):892–909.
 11. Fenton WS, Blyler CR, Heinssen RK. Determinants of medication compliance in schizophrenia: empirical and clinical findings. *Schizophr Bull*. 1997;23(4):637–51.
 12. Barkhof E, Meijer CJ, de Sonnevile LM, Linszen DH, de Haan L. Interventions to improve adherence to antipsychotic medication in patients with schizophrenia—a review of the past decade. *Eur Psychiatry*. 2012;27(1):9–18.
 13. Gallhofer B, Bauer U, Lis S, Krieger S, Gruppe H. Cognitive dysfunction in schizophrenia: comparison of treatment with atypical antipsychotic agents and conventional neuroleptic drugs. *Eur Neuropsychopharmacol*. 1996;6 Suppl 2:S13–20.
 14. Keefe RS, Harvey PD. Cognitive impairment in schizophrenia. *Handb Exp Pharmacol*. 2012;213:11–37.
 15. Pilling S, Bebbington P, Kuipers E, Garety P, Geddes J, Orbach G, et al. Psychological treatments in schizophrenia: I. Meta-analysis of family intervention and cognitive behaviour therapy. *Psychol Med*. 2002;32(5):763–82.
 16. Vinogradov S, Fisher M, Nagarajan S. Cognitive training in schizophrenia: golden age or wild west? *Biol Psychiatry*. 2013;73(10):935–7.
 17. Marder SR, Fenton W. Measurement and treatment research to improve cognition in schizophrenia: NIMH MATRICS initiative to support the development of agents for improving cognition in schizophrenia. *Schizophr Res*. 2004;72(1):5–9.
 18. Paquin K, Wilson AL, Cellard C, Lecomte T, Potvin S. A systematic review on improving cognition in schizophrenia: which is the more commonly used type of training, practice or strategy learning? *BMC Psychiatry*. 2014;14:139.
 19. Lu WH, Zhang C, Yi ZH, Li ZZ, Wu ZG, Fang YR. Association between BDNF Val66Met polymorphism and cognitive performance in antipsychotic-naïve patients with schizophrenia. *J Mol Neurosci*. 2012;47(3):505–10.
 20. Zhang C, Cai J, Zhang J, Li Z, Guo Z, Zhang X, et al. Genetic modulation of working memory deficits by ankyrin 3 gene in schizophrenia. *Prog Neuropsychopharmacol Biol Psychiatry*. 2014;50:110–5.
 21. Elvevag B, Goldberg TE. Cognitive impairment in schizophrenia is the core of the disorder. *Crit Rev Neurobiol*. 2000;14(1):1–21.
 22. Zhang C, Fang YR, Xu L. Glutamate receptor 1 phosphorylation at serine 845 contributes to the therapeutic effect of olanzapine on schizophrenia-like cognitive impairments. *Schizophr Res*. 2014;159(2–3):376–84.
 23. Shimizu S, Mizuguchi Y, Ohno Y. Improving the treatment of schizophrenia: role of 5-HT receptors in modulating cognitive and extrapyramidal motor functions. *CNS Neurol Disord Drug Targets*. 2013;12(6):861–9.
 24. Cai J, Yi ZH, Lu WH, Fang YR, Zhang C. Crosstalk between 5-HT_{2c}R and PTEN signaling pathway in atypical antipsychotic-induced metabolic syndrome and cognitive dysfunction. *Med Hypotheses*. 2013;80(4):486–9.
 25. Genevsky A, Garrett CT, Alexander PP, Vinogradov S. Cognitive training in schizophrenia: a neuroscience-based approach. *Dialogues Clin Neurosci*. 2010;12(3):416–21.
 26. Dang J, Zhang J, Guo Z, Lu W, Cai J, Shi Z, et al. A pilot study of iPad-assisted cognitive training for schizophrenia. *Arch Psychiatr Nurs*. 2014;28(3):197–9.
 27. Roberts DL, Penn DL. Social cognition and interaction training (SCIT) for outpatients with schizophrenia: a preliminary study. *Psychiatry Res*. 2009;166(2–3):141–7.
 28. Bowie CR, McGurk SR, Mueser B, Patterson TL, Harvey PD. Combined cognitive remediation and functional skills training for schizophrenia: effects on cognition, functional competence, and real-world behavior. *Am J Psychiatry*. 2012;169(7):710–8.
 29. Friedman-Yakoobian MS, Mueser KT, Giuliano A, Goff DC, Seidman LJ. Family-directed cognitive adaptation for schizophrenia. *J Clin Psychol*. 2009;65(8):854–67.
 - 30.●● Cai J, Zhu Y, Zhang W, Wang Y, Zhang C. Comprehensive family therapy: an effective approach for cognitive rehabilitation in schizophrenia. *Neuropsychiatr Dis Treat*. 2015;11:1247–53.
- Cai et al. hypothesize that a combination of individual and family interventions may be useful cognitive rehabilitation

- paradigm for schizophrenia. Trial suggests that comprehensive family therapy can be an effective approach for improving cognitive function in patients with schizophrenia.
31. Liberman RP, Wallace CJ, Blackwell G, Kopelowicz A, Vaccaro JV, Mintz J. Skills training versus psychosocial occupational therapy for persons with persistent schizophrenia. *Am J Psychiatry*. 1998;155(8):1087–91.
 32. Cohen AN, Glynn SM, Murray-Swank AB, Barrio C, Fischer EP, McCutcheon SJ, et al. The family forum: directions for the implementation of family psychoeducation for severe mental illness. *Psychiatr Serv*. 2008;59(1):40–8.
 33. Ozkan B, Erdem E, Demirel Ozsoy S, Zararsiz G. Effect of psychoeducation and telepsychiatric follow up given to the caregiver of the schizophrenic patient on family burden, depression and expression of emotion. *Pak J Med Sci*. 2013;29(5):1122–7.
 34. Chien WT, Chan SW. The effectiveness of mutual support group intervention for Chinese families of people with schizophrenia: a randomised controlled trial with 24-month follow-up. *Int J Nurs Stud*. 2013;50(10):1326–40.
- This study shows that family-led mutual support group for schizophrenia produces long-term benefits to both the families' and families' functioning and relapse prevention for patients.
35. Ran MS, Xiang MZ, Chan CL, Leff J, Simpson P, Huang MS, et al. Effectiveness of psychoeducational intervention for rural Chinese families experiencing schizophrenia—a randomised controlled trial. *Soc Psychiatry Psychiatr Epidemiol*. 2003;38(2):69–75.
 36. Guo X, Zhai J, Liu Z, Fang M, Wang B, Wang C, et al. Effect of antipsychotic medication alone vs combined with psychosocial intervention on outcomes of early-stage schizophrenia: a randomized, 1-year study. *Arch Gen Psychiatry*. 2010;67(9):895–904.
 37. Magana SM, Garcia JIR, Hernandez MG, Cortez R. Psychological distress among Latino family caregivers of adults with schizophrenia: the roles of burden and stigma. *Psychiatr Serv*. 2007;58(3):378–84.
 38. Chen FP, Greenberg JS. A positive aspect of caregiving: the influence of social support on caregiving gains for family members of relatives with schizophrenia. *Community Ment Health J*. 2004;40(5):423–35.
 39. Dixon L, Adams C, Lucksted A. Update on family psychoeducation for schizophrenia. *Schizophr Bull*. 2000;26(1):5–20.
 40. Rummel-Kluge C, Pitschel-Walz G, Bauml J, Kissling W. Psychoeducation in schizophrenia—results of a survey of all psychiatric institutions in Germany, Austria, and Switzerland. *Schizophr Bull*. 2006;32(4):765–75.
 41. McFarlane WR, Dixon L, Lukens E, Lucksted A. Family psychoeducation and schizophrenia: a review of the literature. *J Marital Fam Ther*. 2003;29(2):223–45.
 42. Murray-Swank AB, Dixon L. Family psychoeducation as an evidence-based practice. *CNS Spectr*. 2004;9(12):905–12.
 43. 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. *Schizophr Bull*. 2001;27(1):73–92.
 44. McFarlane WR, Lukens E, Link B, Dushay R, Deakins SA, Newmark M, et al. Multiple-family groups and psychoeducation in the treatment of schizophrenia. *Arch Gen Psychiatry*. 1995;52(8):679–87.
 45. Hogarty GE, Anderson CM, Reiss DJ, Kornblith SJ, Greenwald DP, Ulrich RF, et al. Family psychoeducation, social skills training, and maintenance chemotherapy in the aftercare treatment of schizophrenia. II. Two-year effects of a controlled study on relapse and adjustment. Environmental-Personal Indicators in the Course of Schizophrenia (EPICS) Research Group. *Arch Gen Psychiatry*. 1991;48(4):340–7.
 46. Corrigan PW, Liberman RP, Engel JD. From noncompliance to collaboration in the treatment of schizophrenia. *Hosp Community Psychiatry*. 1990;41(11):1203–11.
 47. Sherman MD. The Support and Family Education (SAFE) program: mental health facts for families. *Psychiatr Serv*. 2003;54(1):35–7.
 48. Bauml J, Pitschel-Walz G, Volz A, Engel RR, Kissling W. Psychoeducation in schizophrenia: 7-year follow-up concerning rehospitalization and days in hospital in the Munich psychosis information project study. *J Clin Psychiatry*. 2007;68(6):854–61.
 49. Aguglia E, Pascolo-Fabrizi E, Bertossi F, Bassi M. Psychoeducational intervention and prevention of relapse among schizophrenic disorders in the Italian community psychiatric network. *Clin Pract Epidemiol Ment Health*. 2007;3:7.
 50. Dyck DG, Short RA, Hendryx MS, Norell D, Myers M, Patterson T, et al. Management of negative symptoms among patients with schizophrenia attending multiple-family groups. *Psychiatr Serv*. 2000;51(4):513–9.
 51. McFarlane WR, Link B, Dushay R, Marchal J, Crilly J. Psychoeducational multiple family groups: four-year relapse outcome in schizophrenia. *Fam Process*. 1995;34(2):127–44.
 52. Pollio DE, North CS, Reid DL, Miletic MM, McClendon JR. Living with severe mental illness—what families and friends must know: evaluation of a one-day psychoeducation workshop. *Soc Work*. 2006;51(1):31–8.
 53. Rummel-Kluge C, Kissling W. Psychoeducation in schizophrenia: new developments and approaches in the field. *Curr Opin Psychiatry*. 2008;21(2):168–72.