Schizophrenia Bulletin vol. 33 no. 5 pp. 1056–1062, 2007
doi:10.1093/schbul/sbm078
Advance Access publication on July 7, 2007

Gerard E. Hogarty (1935–2006): Combining Science and Humanism to Improve the Care of Persons With Schizophrenia

Shaun M. Eack[1,2,3], Nina R. Schooler[3], and Rohan Ganguli[2]

[2]Western Psychiatric Institute and Clinic, University of Pittsburgh School of Medicine; [3]Department of Psychiatry, Georgetown University School of Medicine

Gerard E. Hogarty was a scholar and clinician whose career was dedicated to improving the lives of persons with schizophrenia through the rigorous development and testing of novel psychosocial treatment approaches. During the course of his career, he is credited with the development of many of the psychosocial treatments that have become the pillars of evidence-based practices for schizophrenia today. This review outlines the evolution of Hogarty's contributions to the development of psychosocial approaches for schizophrenia by presenting a chronological history of the 4 distinct treatments he developed during the course of his career. These include major role therapy, an early precursor to clinical case management; family psychoeducation, an approach to ally with and educate family members to reduce intrafamilial distress; personal therapy, a flexible, individual psychotherapy, aimed at teaching patients stress management and affective regulation techniques; and finally, cognitive enhancement therapy, a comprehensive, developmental approach to the remediation of social- and nonsocial-cognitive deficits. Each of these treatments built upon the findings of the previous one, and as a consequence, each significantly improved the lives of persons with schizophrenia and expanded the treatment possibilities available to such individuals. These efforts represent a lifelong dedication to advancing the treatment of schizophrenia through rigorous scientific inquiry and exemplify a unique combination of science and humanism that has left a lasting impact on the field and the lives of many individuals suffering from this disease.

Key words: psychosocial treatment/rehabilitation/psychotherapy/psychoeducation/cognitive remediation

Introduction

The contributions of Gerard E. Hogarty to improving the treatment of persons with schizophrenia were both distinctive and unique. Throughout the course of his career, Hogarty's work represented an unwavering and steadfast dedication to improving the care of individuals with the disease. Most knew Hogarty for the conservative, yet creative and incisive scientist he was, often from reading his work here in the *Schizophrenia Bulletin* or the *Archives of General Psychiatry*, where the majority of his studies were published, or from receiving one of his personally signed critiques that came as part of his invaluable service to the review boards of the leading journals in psychiatry. While Hogarty was indeed one of our premier schizophrenia researchers, his scholarly contributions tended to overshadow the fact that it was his clinical acumen and compassion for persons with schizophrenia and their family members that drove much of his work and focused it specifically on the treatment of individuals with the illness. Among his close colleagues, fellow clinicians, and particularly his patients, Hogarty's clinical skill was perhaps best exemplified by his delightful knack for connecting with patients and his ability to explain even the most complex clinical and neurobiological phenomena so that its personal relevance to that individual was immediately clear. Whether it be explaining the neurobiology of schizophrenia to family members through the introduction of "Mr. Dopamine" or describing the importance of perspective taking to patients by discussing its relevance for knowing when to ask Dad for the keys to the car, Hogarty always seemed to have a way of relaying some of the most pertinent and complex ideas in a manner that was easily understandable and immediately engaging. Hogarty's art as a clinician not only ensured his personal effectiveness with patients but also when combined with his passion for science spurred the development, refinement, and empirical validation of 4 major psychosocial treatments for persons with schizophrenia (major role therapy [MRT], family psychoeducation, personal therapy [PT], and cognitive enhancement therapy [CET]). These psychosocial treatments have expanded the treatment possibilities for this population and have significantly advanced the care that such individuals receive, not only in Pittsburgh, where he spent the last 31 years

[1]To whom correspondence should be addressed; e-mail: sme12@pitt.edu.

Table 1. Evolution of Psychosocial Treatment for Schizophrenia, Gerard E. Hogarty (1968–2006)

Type	Process	Theoretical Relationship to Pathophysiology
Major role therapy (1968–1976)	Psychosocial help for people with schizophrenia (early case management)	Unrelated
Social skills training (1978–1986)	Secondary environmental stress modification via correction of provocative behavioral deficits or excesses	Indirect
Family psychoeducation (1978–1986)	Primary environmental stress modification via education and management	Indirect
Personal therapy (1987–1995)	Identification and adaptive control of psychotic prodromes	Partially direct
Cognitive enhancement therapy (1996–2006)	"Gistful" social cognition related to context appraisal and perspective taking (developmental, secondary socialization)	Entirely direct

of his professional career but also throughout the world. What follows is an overview of the evolution of Hogarty's contributions to the psychosocial treatment of persons with schizophrenia (see table 1). These successive treatment developments exemplify his astute clinical wisdom concerning the nature of the disease and a long-term commitment to advancing the treatment of persons with schizophrenia by carrying out meticulous research. In this way, Hogarty's clinical skills touched not only the patients who had the direct benefit of his attention but also all those who benefited from the treatments he devised and assessed. These psychosocial treatment development efforts represent only a proportion of Hogarty's scientific endeavors, as his many contributions to the field touch upon areas ranging from psychopharmacology to clinical assessment, in addition to his work on psychosocial treatments.

Major Role Therapy

Hogarty's contributions to the treatment of persons with schizophrenia began as principal investigator of the National Institute of Mental Health (NIMH) Collaborative Outpatient Study in Schizophrenia shortly after he completed his training. He had received his Master of Social Work degree from Catholic University in 1960, and after a brief stint as a caseworker in Washington DC, began working at Springfield State Hospital in Maryland where he was the Research Social Worker in a multisite NIMH schizophrenia psychopharmacology study. Martin Gross and Arthur Mandel (both students of prominent European psychiatrists) led the team at Springfield, and they guided Hogarty's learning about the treatment of schizophrenia. During his efforts at the hospital, NIMH quickly took note of Hogarty's potential and recruited him to the Psychopharmacology Service Center (PSC), where he received his research training with Martin Katz, Solomon Goldberg, and Jonathan Cole, who headed the PSC. After spending a year at this program and learning about the nuances of experimental design and analyses, Hogarty left NIMH well-equipped to begin his lengthy career studying the treatment of schizophrenia, which started with the NIMH Collaborative Outpatient Study in Schizophrenia, a large aftercare investigation of the pharmacological and psychosocial treatment of the disease.

The NIMH Collaborative Outpatient Study in Schizophrenia was charged with the dual task of examining both the efficacy of maintenance treatment with antipsychotic medications and whether a psychosocial treatment for persons with schizophrenia would provide additional benefits over and above the relapse prevention effects presumed to be provided by medication. This was the first placebo-controlled trial of maintenance antipsychotic medications for schizophrenia, and while which medication to use was obvious at the time (chlorpromazine), there was no clear choice for the psychosocial treatment. The approach that Hogarty developed for this research, MRT,[1] drew heavily from his early training in social work and in retrospect appears to incorporate elements that are now considered as parts of clinical case management. MRT targeted the difficulties individuals with schizophrenia frequently displayed in fulfilling major life roles, such as completing school, engaging in paid employment, and/or performing household roles associated with daily living activities.[1] MRT provided an atheoretical form of compassionate care that mobilized individual social casework and vocational rehabilitation for persons with schizophrenia returning to the community after hospitalization. MRT was pragmatic; its goals were based on the observation that individuals with schizophrenia were not fulfilling major life roles, and therefore, the approach attempted to provide resources and supports to address that problem. Examination of its effects provided a profound advance to the field and ushered in an era of evidence-based treatment development efforts that would point to the relevance of psychosocial approaches for persons with the disease.

The effects of MRT on relapse rates and major role adjustment were examined in the NIMH Collaborative

Outpatient Study in Schizophrenia, which provided a unique investigation of the effects of maintenance treatment with chlorpromazine, psychosocial treatment, and the combination of 2. This study randomized nearly 400 individuals with schizophrenia to chlorpromazine and MRT, chlorpromazine only, MRT and a placebo, and a placebo control. Study participants were treated and followed over the course of 2 years to examine the unique and interactive effects of maintenance pharmacotherapy and psychosocial treatment on relapse and adjustment. The findings of this investigation were provocative on several fronts. Over the course of the 2-year study, large differential effects were observed favoring maintenance chlorpromazine over placebo in reducing relapse, regardless of the presence of MRT, providing clear and dramatic support for the efficacy of prophylactic antipsychotic medications in reducing psychotic relapse.[1,2] Given the lack of previous placebo-controlled trials examining the efficacy of maintenance antipsychotic medications, these findings alone provided a significant advancement to the knowledge base regarding the effective psychopharmacological treatment of schizophrenia (later Hogarty would again provide another important advancement to this area by being one of the first to show that 20% of standard doses of antipsychotic medications were just as effective at reducing relapse as regular doses, but afforded fewer extrapyramidal side effects[3]). With regard to role adjustment, neither MRT nor maintenance chlorpromazine were by themselves effective at improving adjustment. Rather, it was observed that significant improvements in role adjustment were attained only after 18 months of treatment with combined MRT and maintenance chlorpromazine, leading Hogarty and colleagues to conclude that "the medication clinic that simply offers pills will do little to improve the adjustment of patients beyond forestalling relapse.[4]" Equally as intriguing, it also appeared that those individuals who received a MRT and placebo exhibited the worst rates of role adjustment, even compared with patients who received a placebo without MRT.[4] These provocative findings cemented Hogarty's interest in psychosocial approaches for helping persons with schizophrenia and provided several key lessons that would guide his future treatment development efforts: (1) that time is a key element in understanding the role of psychosocial treatments for schizophrenia, (2) that such approaches are best developed on a platform of appropriate pharmacological treatment, and (3) that effective treatment could extend far beyond the prescription of medication.

The investigation of MRT and maintenance chlorpromazine provided important evidence regarding the role of psychosocial approaches in the treatment of schizophrenia, but the relapse rates among those who received prophylactic antipsychotic treatment (regardless of receipt of psychosocial treatment) continued to be quite high and beckoned the development of additional approaches to reduce psychotic relapse. At the same time this study was being conducted, research increasingly began to point to the importance of environmental stress in hastening psychotic relapse among individuals with schizophrenia, particularly stress within the family environment.[5] Always looking to advance the treatment of persons with schizophrenia, Hogarty read this literature with an eye toward application and began to see the development of a psychosocial approach to reduce stress within the family as a promising method for preventing relapse among this population. Hogarty was an omnivorous reader and had an ability to adapt ideas and concepts from a range of sources to synthesize them in a way to create unique treatments for schizophrenia. This was the case even in these early treatment developments but is, we believe, most clearly seen in the development of CET. But, we are getting ahead of our story.

Family Psychoeducation

Hogarty's second major contribution to the treatment of schizophrenia was the development of family psychoeducation, a psychosocial approach now widely accepted as one of the pillars of evidence-based treatment for this population.[6,7] Drawing from a broad literature in psychological science, Hogarty and colleagues formulated the problem of relapse in schizophrenia as based upon a "core psychological deficit" that is manifested by a sensitivity to intense stimuli and a biological susceptibility to stress.[6] He linked this theoretical understanding of the pathogenesis of relapse in schizophrenia to emerging evidence that stress within the family environment (particularly those environments characterized by high levels of "expressed emotion" or criticism and emotional overinvolvement[8]) was a substantial predictor of positive symptom exacerbations.[5] Based on this observation, he formulated a promising new target for the psychosocial treatment of relapse in schizophrenia—intrafamilial stress. Now at the Department of Psychiatry, University of Pittsburgh, he joined with longtime family therapist, Carol M. Anderson, to develop a program designed to ally with family members of persons with schizophrenia. The treatment they developed provided education about the disease, in an effort to reduce the intrafamilial distress that often resulted from being charged with providing long-term care for relatives with schizophrenia, with little to no explanation about its course, prognosis, putative causes, or effective treatment. This program taught families what to expect from schizophrenia, how best to manage and respond to its symptoms, and how to keep the "emotional temperature" of the family environment low through employing effective problem-solving and communication skills. At a time when few in the professional milieu sought to engage families in the treatment process, frequently thinking that the interests of the patient were best served by distance from the family and

that the interests of family members were best served by complacent ignorance about the illness, the development of an educational program designed to ally with families and provide them with information about the disease represented a radical departure from traditional methods of care and family involvement.

Just as provocative as the family psychoeducation program itself were its effects on relapse among persons with schizophrenia. The initial trial of family psychoeducation for schizophrenia was conducted with some 100 patients living in households characterized by high levels of expressed emotion. All patients received maintenance antipsychotic medication and were randomly assigned to receive family psychoeducation, social skills training, their combination, or only maintenance pharmacotherapy, for up to 2 years. Throughout the study, individuals receiving family psychoeducation consistently displayed significantly lower relapse rates than those receiving only maintenance pharmacotherapy.[9,10] In fact, during the first year alone, not a single patient experienced a psychotic relapse in the group that received family psychoeducation and social skills training combined; a stark comparison to the 41% relapse rate of those receiving only maintenance pharmacotherapy.[9] After 2 years of treatment, the family psychoeducation condition emerged as the most effective approach to forestall relapse among persons with schizophrenia, regardless of the presence or absence of social skills training, with only 29% of patients receiving family psychoeducation relapsing over the 2-year study period, compared with 62% of patients receiving only maintenance pharmacotherapy.[10] These results echoed the importance of psychosocial approaches in the treatment of schizophrenia highlighted by Hogarty's series of studies on MRT and now convincingly demonstrated that profound treatment gains could be harnessed from such approaches.

Having effectively reduced the 2-year rate of relapse for persons with schizophrenia living in high-expressed emotion households by 33%, most would have been satisfied with these results and adjourned from further treatment development efforts for perhaps an easier career of replication studies. Surprisingly, Hogarty concluded at the end of his 2-year trial that although family psychoeducation was very effective at reducing relapse among persons with schizophrenia, patients were "better but not well.[10]" He observed in his own trial of family psychoeducation, as well as studies of other programs, that the strongest effects on patient relapse accrued primarily early in the course of treatment and significantly degraded once intervention concluded. Consequently, extant psychosocial interventions appeared to be effective at reducing relapses that would normally occur proximally to hospital discharge, but such treatments seemed less able to prevent relapses that occur several years postdischarge. These limitations suggested to Hogarty that still more work needed to be done to address the late postdischarge relapses that would frequently occur among patients receiving even the best of care and led him to begin an ambitious treatment development effort to prevent late relapses through the early detection and regulation of the prodromal signs of relapse. Although the studies of MRT and family psychoeducation provided up to 2 years of treatment, Hogarty now began even longer and more challenging treatment developments and as a result long, 3-year trials.

Personal Therapy

Building on the burgeoning literature surrounding the role of stress and affect dysregulation in schizophrenic relapse,[11,12] Hogarty developed PT, his third major treatment development effort to improve the lives of persons with schizophrenia. The focus of PT was on reducing the late (2nd and 3rd year, postdischarge) relapses that frequently occurred among persons with schizophrenia by providing such individuals with stress management and affect regulation techniques that were linked to their stage of recovery from the illness. Previous psychosocial treatment development efforts had recognized the importance of environmental stress in hastening relapse among persons with schizophrenia but focused only on modifying the *external* environment, either directly (eg, family psychoeducation) or indirectly (eg, social skills training), rather than helping patients learn to manage their own *internal* signs of distress. As a consequence, when external safeguards against environmental stress were removed, stress and relapse often ensued.[10]

Hogarty postulated that a psychosocial approach designed to help patients manage their own distress might have broader and more long-term effects on relapse than techniques designed to control only some aspects of the patient's environment (eg, the family). The regulation of affect, in particular, became a key component to this approach, based on earlier observations that the prodromal signs of a psychotic relapse tended to manifest as symptoms of dysregulated affect, rather than the positive signs of psychosis.[13] Based on these observations, an array of both novel (eg, managing and responding to criticism) and traditional strategies (eg, diaphragmatic breathing, progressive muscle relaxation) for managing stress and dysregulated affect were incorporated into a single treatment that flexibly provided patients with stress management techniques designed to prevent the progression of a schizophrenic prodrome into a full psychotic relapse.[11] A unique aspect of PT was its sensitivity to patients' need for different levels of treatment intensity at different phases of the illness (based largely on earlier findings from the MRT study suggesting the potential overloading effects of aggressive psychosocial approaches[4,14]). PT was divided into basic, intermediate, and advanced phases to accommodate a wide range of patients, from the recently discharged to those living in the community for several years, making the approach a truly "disorder-relevant" treatment for persons with schizophrenia.[11]

The efficacy of PT on late relapse and adjustment was tested in two 3-year trials, one for persons with schizophrenia living with their family members and a second for those living alone.[15,16] Among those living with their family members, patients were randomly assigned to supportive therapy, PT, family psychoeducation, or PT and family psychoeducation combined. Among those not living with family, patients were randomly assigned to receive either PT or supportive therapy. Over the course of 3 years of treatment, patients receiving PT and who were living with family members demonstrated significantly lower relapse rates than those receiving supportive therapy. In the trial of patients living with family, only 13% of patients who received PT relapsed within the first 2 years of treatment, and subsequently, no additional patients relapsed during the third year of treatment, suggesting that PT significantly affected late relapse in this group. Effects among individuals not living with family members surprisingly suggested the opposite effect of PT—those receiving the treatment actually showed an increase in relapse rates. Hogarty and colleagues postulated that the differences in the effect of PT for those living with family members versus those living independent of family was attributable to a ''cognitive overload'' among patients living independent of family, whose basic needs were frequently placed in jeopardy during the course of treatment. Consequently, they suggested that the employment of PT be delayed until stable housing and other basic needs were met.[15]

Findings concerning adjustment were more straightforward, in that individuals receiving PT significantly improved in several domains of social adjustment, regardless of family living status, indicating that PT could have significant effects on adjustment beyond its effects on psychiatric relapse.[16] As such, by the end of a series of 3-year trials of PT, Hogarty had successfully developed an individual psychotherapy for patients with schizophrenia that would impact important domains of social adjustment and markedly reduce relapse among those with adequate basic supports. With such an advancement, it is somewhat surprising that Hogarty again concluded that patients were better, but not well. He cited the effects of PT on the Global Assessment Scale,[17] where patients entered the program with an average score of 47 and left with an average score of 64—a significant improvement, but not what Hogarty considered an "optimal recovery from schizophrenia.[16]" Consequently, he turned his attention to the rate-limiting effects of social- and nonsocial-cognitive deficits among persons with schizophrenia and once again began an ambitious treatment development program designed to promote a fuller recovery from the disease.

Cognitive Enhancement Therapy

Hogarty's contributions to the treatment of schizophrenia culminated with the development of CET,[18] a unique cognitive rehabilitation program designed to address social- and nonsocial-cognitive deficits. With the symptoms of psychosis and psychotic relapse significantly reduced from his previous efforts and the introduction of atypical antipsychotic medications, Hogarty began to examine the contributions of other factors to poor social adjustment and functional recovery from schizophrenia. Research had increasingly suggested the presence and functional significance of cognitive deficits among this population, yet treatment targets and strategies designed to improve cognition were not well formulated.[19] Drawing from a massive interdisciplinary literature ranging from cognitive neuropsychology to childhood development and fuzzy-trace theory, Hogarty creatively formulated the targets of a cognitive rehabilitation program designed not only to improve cognition but aimed also at producing broad effects on social and functional outcome among persons with schizophrenia.[20,21] He posited that developmentally based cognitive impairments in perspective taking, social context appraisal, and "gistful abstraction" were key rate-limiting factors conspiring against a fuller social recovery from the disease and that a cognitive rehabilitation approach was needed to ''jump start'' the arrested cognitive development in these areas seen among persons with schizophrenia. Based on these observations and hypotheses, Hogarty developed CET, an integrated neurocognitive and social-cognitive remediation program for stabilized persons with schizophrenia, who nonetheless continue to experience significant social and functional disability.[18]

The focus of CET is to broadly provide patients with enriched cognitive experiences through computer training and secondary socialization opportunities, so that individuals can develop the social and nonsocial cognitive abilities needed to succeed in complex interpersonal interactions. In this respect, the program incorporates an individual neurocognitive training program involving cognitive exercises designed to enhance attention, memory, and problem-solving abilities and a social-cognitive group that focuses on improving the social-cognitive abilities that underlie effective interpersonal behavior in unrehearsed social situations, such as taking the perspective of others, reading nonverbal cues, and adjusting knowledge about the rules and norms of behavior based on the social context.[18] This program clearly represented one of Hogarty's most ambitious efforts to improve the care of persons with schizophrenia and continued to illustrate his unique ingenuity for designing effective psychosocial interventions for this population.

Evidence surrounding the efficacy of CET came from a 2-year randomized-controlled trial of 121 persons with chronic schizophrenia.[22] Individuals were randomly assigned to receive either CET or a supportive therapy condition. The supportive therapy condition raised the bar for comparison because it incorporated components of the basic and intermediated phases of PT. Participants

were treated for 2 years and then followed up 1 year after the completion of treatment. This was the first time that Hogarty examined outcome after treatment ended, and the inclusion of a follow-up period reflected his belief that CET would result in changes that would be sustained after the end of treatment. CET proved to be highly effective at improving both cognition and behavior in this study. Within the first year of treatment, individuals receiving CET improved at highly significant rates on measures of neurocognition and processing speed compared with their supportive therapy counterparts. By the second year of treatment, individuals receiving CET continued to show marked differential rates of improvement in basic cognition and also showed significant improvements in dysfunctional cognitive style, social cognition, and social adjustment. Within-group effect sizes in each of these domains met or exceeded 1 SD by the end of the study, indicating that CET could produce large improvements in social and nonsocial cognition, as well as broader improvements in social adjustment.[22] A subsequent follow-up study of individuals enrolled in this trial indicated that even 1 year after treatment had ended, individuals receiving CET continued to maintain their treatment gains in all domains of cognition and behavior, providing striking evidence of a lasting therapeutic effect for the treatment.[23] Consequently, Hogarty had largely met his goal of developing an effective treatment for enhancing cognition that would produce significant and lasting effects on the recovery of persons with schizophrenia.

Conclusions

The evolution of Gerard E. Hogarty's contributions to the psychosocial treatment of schizophrenia represents the remarkable dedication of a unique and creative scholar to improving the lives of persons with the disease. Over the course of his career, Hogarty developed a series of 4 targeted psychosocial approaches to improve the care of persons with schizophrenia. Each of these approaches built upon the strengths and responded to the limitations of the previous one, and as a consequence, each successive treatment grew markedly in its efficacy. This evolution of Hogarty's contributions covers a substantial proportion of all the evidence-based psychosocial approaches available for persons with schizophrenia, which further exemplifies his substantial and lasting impact on the field. Few scholars can be credited with such a committed and productive career that continually produced significant and *direct* benefits for people suffering from such a complex and disabling disease.

Despite the magnitude and significance of his contributions, Hogarty remained quite modest and humble about his work and would acknowledge that we still have a long way to go toward improving the care of persons with schizophrenia. After years of developing and testing different psychosocial approaches for treating schizophrenia, Hogarty saw that the majority of his treatment development efforts were grossly underutilized in routine clinical settings, and if there was one disappointment often voiced throughout his prolific career, it was that there was not a greater and more widespread uptake of the practices he pioneered. These concerns were less about receiving personal credit than about the patients and families who were not getting access to the most effective forms of help and relief. As a consequence, Hogarty could be a measured and thoughtful advocate and educator to policy makers on the merits of offering the best forms of treatment and was a righteously indignant critic of misguided insurance policies that deny access to evidence-based interventions. In addition, Hogarty spent his last few years beginning efforts to disseminate what he saw as his most effective treatment endeavor, CET. Just a couple of weeks before he passed away, he completed his formal training manual for CET,[18] hoping that its dissemination would facilitate a more widespread adoption of CET into the mainstream of community mental health service systems and thereby reach the patients he worked so tirelessly to help. Thus, we end where we began and recognize that it was Hogarty's continual humanistic concern for the care of persons with schizophrenia, evoked by his clinical contacts with sufferers, that provided the motivation for his contributions to the treatment of schizophrenia.

References

1. Hogarty GE, Goldberg SC, the Collaborative Study Group. Drug and sociotherapy in the aftercare of schizophrenic patients. One-year relapse rates. *Arch Gen Psychiatry*. 1973; 2854–64.
2. Hogarty GE, Goldberg SC, Schooler NR, Ulrich RF, the Collaborative Study Group. Drug and sociotherapy in the aftercare of schizophrenic patients. II. Two-year relapse rates. *Arch Gen Psychiatry*. 1974;31603–608.
3. Hogarty GE, McEvoy JP, Munetz M, DiBarry AL, Bartone P, Cather R, et al. Dose of fluphenazine, familial expressed emotion, and outcome in schizophrenia. Results of a two-year controlled study. *Arch Gen Psychiatry*. 1988;45:797–805.
4. Hogarty GE, Goldberg SC, Schooler NR, the Collaborative Study Group. Drug and sociotherapy in the aftercare of schizophrenic patients: III. Adjustment of nonrelapsed patients. *Arch Gen Psychiatry*. 1974;31609–618.
5. Brown GW, Monck EM, Carstairs GM, Wing JK. Influence of family life on the course of schizophrenic illness. *Br J Prevent Soc Med*. 1962;16:55–68.
6. Anderson CM, Hogarty GE, Reiss DJ. Family treatment of adult schizophrenic patients: a psycho-educational approach. *Schizophr Bull*. 1980;6:490–505.
7. Anderson CM, Reiss DJ, Hogarty GE. *Schizophrenia and the Family*. New York: Guilford; 1986.
8. Butzlaff RL, Hooley JM. Expressed emotion and psychiatric relapse: a meta-analysis. *Arch Gen Psychiatry*. 1998;55:547–552.
9. Hogarty GE, Anderson CM, Reiss DJ, Kornblith SJ, Greenwald DP, Javna CD, et al. Family psychoeducation,

social skills training, and maintenance chemotherapy in the aftercare treatment of schizophrenia: I. One-year effects of a controlled study on relapse and expressed emotion. *Arch Gen Psychiatry*. 1986;43:633–642.

10. 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. *Arch Gen Psychiatry*. 1991;48:340–347.
11. Hogarty GE. *Personal Therapy for Schizophrenia and Related Disorders: A Guide to Individualized Treatment*. New York: Guilford; 2002.
12. Hogarty GE, Kornblith SJ, Greenwald D, DiBarry AL, Cooley S, Flesher S, et al. Personal therapy: a disorder-relevant psychotherapy for schizophrenia. *Schizophr Bull*. 1995;21: 379–393.
13. Carr VJ. Recovery from schizophrenia: a review of patterns of psychosis. *Schizophr Bull*. 1983;9:95–121.
14. Goldberg SC, Schooler NR, Hogarty GE, Roper M. Prediction of relapse in schizophrenic outpatients treated by drug and sociotherapy. *Arch Gen Psychiatry*. 1977;34: 171–184.
15. Hogarty GE, Kornblith SJ, Greenwald D, Dibarry AL, Cooley S, Ulrich RF, et al. Three-year trials of personal therapy among schizophrenic patients living with or independent of family: I. Description of study and effects of relapse rates. *Am J Psychiatry*. 1997;154:1504–1513.
16. Hogarty GE, Greenwald D, Ulrich RF, Kornblith SJ, Dibarry AL, Cooley S, et al. Three-year trials of personal therapy among schizophrenic patients living with or independent of family: II. Effects of adjustment of patients. *Am J Psychiatry*. 1997;154:1514–1524.
17. Endicott J, Spitzer RL, Fleiss JL, Cohen J. The Global Assessment Scale: a procedure for measuring overall severity of psychiatric disturbance. *Arch Gen Psychiatry*. 1976;33:766–771.
18. Hogarty GE, Greenwald DP. *Cognitive Enhancement Therapy: The Training Manual.* University of Pittsburgh Medical Center Available at: http://www.CognitiveEnhancementTherapy.com; 2006.
19. Hogarty GE, Flesher S. Cognitive remediation in schizophrenia: proceed with caution. *Schizophr Bull*. 1992;18:51–57.
20. Hogarty GE, Flesher S. Developmental theory for a cognitive enhancement therapy of schizophrenia. *Schizophr Bull*. 1999; 25:677–692.
21. Hogarty GE, Flesher S. Practice principles of cognitive enhancement therapy for schizophrenia. *Schizophr Bull*. 1999; 25:693–708.
22. Hogarty GE, Flesher S, Ulrich R, Carter M, Greenwald D, Pogue-Geile M, et al. Cognitive enhancement therapy for schizophrenia. Effects of a 2-year randomized trial on cognition and behavior. *Arch Gen Psychiatry*. 2004;61:866–876.
23. Hogarty GE, Greenwald DP, Eack SM. Cognitive enhancement therapy: durability and mechanism of effects. *Psychiatr Serv*. 2006;57:1751–1757.