2011-10-17

The Cost Effectiveness of Individual and Family Therapy for Schizophrenia in Managed Care

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A thesis submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of

Master of Science

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December 2011

ABSTRACT

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Much research has explored the cost effectiveness of psychotherapy for schizophrenia. However, to date, no studies have investigated the cost effectiveness of family and individual therapy for schizophrenia in the "real world" of managed care. The purpose of the present study is to compare the cost effectiveness of individual and family therapy for schizophrenia in one leading Health Care Insurer: CIGNA. Six years of outpatient data (2001–2006) and more than 2,100 unique schizophrenic outpatients are included. Research questions in this study concern the total treatment costs, the cost effectiveness, recidivism rates and the dropout rates of individual and family outpatient therapy. The findings show that family therapy is a more cost effective treatment than individual therapy by having lower total treatment costs and recidivism rates. However, family therapy has higher dropout rates than individual therapy.

Keywords: schizophrenia, cost effectiveness, family therapy

ACKNOWLEDGEMENTS

First, I want to acknowledge and thank my friends and family who have supported me through the years. To my mother, I am grateful to have her unconditional love and support to my study in the United States. I am blessed to have such a wonderful mother who teaches me the importance of education and the courage to pursue what I want in my life. Thank you, mother, to provide emotional and financial support to help me complete the degree.

Second, I want to thank my chair Dr. Crane. It has been an honor for me to be your student and in your research team. You have educated and mentored me through this thesis process. I could not have completed this thesis without you. You also have helped and provided support that I needed in these two years. You believed in me and supported me by telling me that I am capable of pursuing what I want in life. I am blessed to have you as my chair. Along with that, I would like to thank the Dr. Crane research team including Adam Moore,
Dave Fawcett and Lori B. Morton for your assistant and support. I would also like to thank my committee members Dr. Miller and Dr. Feinauer for the advice and encouragement.

Finally, I am grateful for the constant love and support from Heavenly Father. I would not be able to do this without Heavenly Father's love, guidance and comfort. I have been so blessed by my Savior in my educational and personal achievement. Thank you, Heavenly Father.

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Introduction

Schizophrenia is described by the National Institute for Health and Clinical Excellence (National Collaborating Centre for Mental Health, 2010) as "a major psychiatric disorder that alters an individual's perception, thoughts, affect and behavior" (p. 18). This disorder is not only costly and devastating for individuals with schizophrenia, but their families and society as well. It affects approximately 1% of the population in the United States (National Institute of Mental Health, 2009) and nearly 24 million people worldwide (World Health Organization, 2010). While overall mental health care costs are over $100 billion a year in the United States (Marth, 2009), the impact cost of schizophrenia, including treatment and loss of productivity, was estimated at $65 billion for 1995 (Wyatt, Henter, Leary, & Taylor, 1995) and $62 billion for 2002 (Wu et al., 2005). Schizophrenia is a serious public health problem, both medically and financially because of its prevalence and tremendous cost (Rockland, 2010). Moreover, individuals with schizophrenia in the U.S. are more likely to die 10 years earlier from preventable conditions than are people in the general population (Mauer, 2006). Schizophrenia is clearly a noteworthy topic for researchers, clinicians, families, administrators, and policy makers.

The diagnostic criteria in the DSM IV-TR (American Psychiatric Association, 2000) describes schizophrenia as displaying a number of symptoms including delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behavior, or negative symptoms that are not better accounted for by another psychotic disorder. The onset of schizophrenia symptoms typically occurs between adolescence and young adulthood (American Psychiatric Association, 2000). The exact cause of schizophrenia is still unknown, but studies suggest that genetics, neurochemical process, early environment, psychological and social processes are important contributory factors to the disorder (National Collaborating Centre for Mental Health, 2010).

Moreover, schizophrenia is a severe and chronic disorder with some people remaining ill while others having exacerbations and remissions (American Psychiatric Association, 2000). DSM IV-TR suggests that "complete remission, a return to full premorbid functioning, is probably not common in this disorder" (American Psychiatric Association, 2000, p. 309).

Because schizophrenia is an expensive and chronic disorder, it is important to develop a clinically and fiscally effective treatment. A cost effective treatment decreases direct costs, by reducing relapse rate and hospitalization, and reduces indirect costs, by increasing patients' functioning and productivity (Rockland, 2010). Therefore, a cost effective treatment benefits the individuals with the disorder and ease the families' and society's burden. However, as most studies use randomized control group trials, there is little known about cost effective treatment for schizophrenia in the "real world" of managed care. Exploring cost effective treatments for schizophrenia in managed care would help to identify the types of treatment that are working in the real world situations. The current study provides an opportunity to understand whether family or individual therapy is more cost effective in managed care. It is likely that insurance companies, health care providers, and families will acknowledge the more cost effective treatment and provide support in favor of that treatment for schizophrenia.

Research studies have explored the cost effectiveness of psychotherapy for schizophrenia (Chisholm et al., 2008; Gutierrez-Recacha, Chisholm, Haro, Salvador-Carulla, & Ayuso-Mateos, 2006; Mihalopoulos, Magnus, Carter, & Vos, 2004; von Sydow, Beher, Schweitzer-Rothers, & Retzlaff, 2010). However, to date, no studies have investigated the cost effectiveness of individual and family therapy for schizophrenia in the real world of managed care. Most of the studies about cost effective treatments conduct experimental design research to explore the influence of psychotherapy on treating schizophrenia (Addington, Mccleery, & Addington, 2005;

Bertrando et al., 2006; Bonomi, Boudreau, Fishman, Meenan, & Revicki, 2005; Bressi, Manenti, Frongia, Porcellana, & Invernizzi, 2008; Grover, Avasthi, Chakrabarti, Bhansali, & Kulhara, 2005; Mihalopoulos et al., 2004). However, studies with experimental design do not provide full understanding of whether a treatment is cost effective in the real world of managed care for clinicians and administrators. As Crane (2008) argues, "efficacy research, which emphasizes controlled experimental and clinical trials under specific conditions, does not adequately address the effectiveness of family therapy in real-world situations" (p. 399).

The Schizophrenia Patient Outcomes Research Team (PORT) also presents the same concern about internal and external validity of randomized controlled trails that most evidence-based guidelines are based on (Kreyenbuhl, Buchanan, Dickerson, & Dixon, 2010). Results of experimental research on an unrepresentative sample are not likely to generalize to the non-laboratory realm of managed care. By comparing the cost effectiveness of family and individual therapy for schizophrenia in managed care, it becomes possible to examine treatment outcomes in the real world. The current study examines the cost effectiveness of individual and family therapy for schizophrenia in managed care with real clients, real problems, and real practitioners. This current study also explores individual therapy, family therapy, dropout, and cost effectiveness of the disorder.

There are many different ways to treat schizophrenia. Some common approaches include psychopharmacological treatment, individual therapy, family psycho-education and family therapy. Research has shown clinical effectiveness for these modalities. A brief review of psychopharmacological treatment, individual and family approaches, and family psychoeducation to schizophrenia treatment follow.

Review of the Literature

Psychopharmacological Treatment

Psychopharmacological treatment is one of the most important approaches for schizophrenia. The first line of treatment to deal with schizophrenic symptoms is using antipsychotic medications (Kreyenbuhl et al., 2010). The older types of medications are also called first generation, or conventional or ”typical” antipsychotics, and the new types of medications are called second generation, or “atypical” antipsychotics (National Collaborating Centre for Mental Health, 2010; National Institute of Mental Health, 2009). The first generation antipsychotics include Chlorpromazine (Thorazine), Haloperidol (Haldol), Perphenazine (Etrafon, Trilafon), and Fluphenazine (Prolixin) (National Institute of Mental Health, 2009). The second generation antipsychotics include Clozapine (Clozaril), Risperidone (Risperdal), Olanzapine (Zyprexa), Quetiapine (Seroquel), Ziprasidone (Geodon), Aripiprazole (Abilify), and Paliperidone (Invega) (National Institute of Mental Health, 2009).

National Institute of Mental Health (2009) states it is common to combine antipsychotic medication with other drugs, such as mood stabilizers, antidepressants and benzodiazepines. The reasons for combining antipsychotics with other drugs are there is lack of effective response to antipsychotic alone; it is for behavioral control; it is a treatment of side effects of antipsychotics; it is a treatment of comorbid or secondary psychiatric problems. Moreover, the effectiveness of antipsychotic medications are reducing symptoms in acute psychotic episodes, preventing relapse, being a crisis treatment of acute behavioral disturbance, and maintaining symptoms relief in a long term (National Collaborating Centre for Mental Health, 2010; Kreyenbuhl et al., 2010).

Although psychopharmacological treatment is a crucial intervention, this study is limited to explore psychotherapy only. A number of studies found that it is more effective to combine antipsychotic medication with psychotherapy for schizophrenia to have better functional outcomes, lower relapse, decrease the severity of symptoms, and increase medication compliance (Dixon et al., 2010; National Collaborating Centre for Mental Health, 2010; Lysaker & Silverstein, 2009; Rosenbaum et al., 2005). However, the current study is unable to explore psychopharmacological treatment because the available data is limited to individual and family therapy only. The clients in the data set may or may not have received both psychotherapy and antipsychotic medications at the same time. This issue will be addressed later in the study.

Individual Therapy

Individual therapy is one of the most frequently used treatment modalities for schizophrenia. Although schizophrenia results primarily from biological causes, this disorder usually disrupts individuals' perceptions, thinking, and emotions. Furthermore, its' residual symptoms can persist a significant length of time (Dickerson & Lehman, 2006). Providing psychotherapy for individuals with schizophrenia can help to normalize, and create meaning for, the experiences of those who suffer from schizophrenia. Treatment has also been shown to lower the distress experienced as a result of the individual's impaired functioning (Lysaker & Silverstein, 2009; National Collaborating Centre for Mental Health, 2010). Through receiving individual therapy, individuals with schizophrenia are more able to cope with their enduring and disrupted perceptions, thinking, and emotions.

Individuals suffering from schizophrenia are frequently unable to develop stable relationships and relate to the other person. This type of relationship is often created between the therapist and the individual. By having a connection with therapists, individuals with

schizophrenia would be able to utilize their therapeutic relationship moving toward health to make sense of their lives and accept and embrace who they are (Lysaker & Silverstein, 2009). Individual therapy for schizophrenia clients can facilitate "an experience of the self and the therapist as two separate people who share a relationship, leading to the stabilization of a sense of personal identity, and the integration of the psychotic experience" (Lysaker & Silverstein, 2009, p. 420).

In order to help individuals with schizophrenia manage their schizophrenic symptoms, and increase self understanding, studies categorized individual therapy into symptom released focused treatment and person based treatment (Dickerson & Lehman, 2006; Kreyenbuhl et al., 2010; Lysaker & Silverstein, 2009). The symptom released focused treatment, such as cognitive behavioral therapy, addresses the symptoms reduction and how individuals with schizophrenia function in daily lives. The person based treatment focuses on their experiences and connection between selves and others (Lysaker & Silverstein, 2009). Different types of individual therapy have specific foci for the needs of individuals with schizophrenia. Both symptom released focused and person based individual therapy for schizophrenia will be discussed here. Cognitive behavioral therapy will represent symptom released focused treatment in the discussion since it is the most frequently used individual therapy to focus on symptoms reduction today.

Cognitive behavioral therapy. Cognitive behavioral therapy (CBT) that focuses on relieving symptoms and improving impaired functioning is one of the most frequently studied individual therapy approach in research today. It has also been shown to be an evidence-based individual therapy for schizophrenia in a one on one format (Dickerson & Lehman, 2006; Kreyenbuhl et al., 2010; Lysaker & Silverstein, 2009; Velligan, 2009). It is usually structured and time limited over several months with strong alliance between therapists and the individuals

with schizophrenia (Dickerson & Lehman, 2006). Research shows that CBT is helpful to deal with irrational cognition (Dickerson & Lehman, 2006; Kreyenbuhl et al., 2010), maladaptive self images (Lysaker & Silverstein, 2009), and high dropout rates (Lysaker, Davis, Bryson, & Bell, 2009). PORT recommends that CBT for individuals with schizophrenia should be practiced for about 4 to 9 months with an emphasis of coping skills for problems and symptoms (Kreyenbuhl et al., 2010). Dropout rate for individual therapy with schizophrenia clients usually reaches more than 50 % by 6 months (Goldstein, 1999). Research suggests that individuals with schizophrenia are more willing to attend CBT that is to reduce chaotic symptoms and irrational cognitions, as well as improve their psychosocial functions (Lysaker et al., 2009). Thus, CBT has shown to potentially increase participation in therapy. In addition to CBT, individual therapy has another approach, person based treatment, which focuses on self experiences more than decreasing symptoms for individuals with schizophrenia.

Person based treatment. Instead of focusing on symptom reduction, person based individual therapy focuses on individuals' experiences, self image, self understanding and self awareness about schizophrenia. Person-based cognitive behavioral therapy moves from focusing on symptoms to focusing on persons with an emphasis of increasing insights and self acceptance, and limiting negative self image (Lysaker & Silverstein, 2009). The first clinician who was in favor of the benefits of individual therapy for schizophrenia, Jung, declared that individual therapy could help schizophrenia patients increase an understanding of who they are (Lysaker & Silverstein, 2009). By participating in individual therapy, individuals with schizophrenia are empowered to actively engage in exploring their past, present and future for their identity with the disorder and connecting with society (Lysaker & Silverstein, 2009). Psychotherapy represents a place where individuals with schizophrenia develop richer and more layered self

awareness and understanding across the course of their lives. This could be an opportunity for them to experience themselves as an active agent by developing a deepened personal narrative in therapy (France & Uhlin, 2006; Lysaker, Buck, & Roe, 2007; Lysaker & Silverstein, 2009; Silverstein, Spaulding, & Menditto, 2006).

The effectiveness of individual therapy. The effectiveness of individual therapy for schizophrenia has been corroborated by research studies. Several studies suggest that individual therapy is an effective way to significantly decrease the severity of symptoms, hospitalization rates, the duration of hospitalization, and relapse rate (Kreyenbuhl et al., 2010; Lysaker & Silverstein, 2009; National Collaborating Centre for Mental Health, 2010). It is also a beneficial treatment to increase social functioning, medication compliance, problem solving and work performance (Dickerson & Lehman, 2006; Lysaker & Silverstein, 2009; National Collaborating Centre for Mental Health, 2010).

Individual therapy is also able to help individuals with schizophrenia understand their mood states, promote their response to emotional stresses and enhance their psychosocial functioning (Dickerson & Lehman, 2006). Because individuals with schizophrenia have dysfunctional abilities for their everyday activities, it is needed to increase their functioning in community by improving social interactions, developing independent living, and enhancing other abilities related to community functioning (Kreyenbuhl et al., 2010). Through individual therapy, individuals with schizophrenia are able to function better in their day to day lives and possibly build a meaningful relationship with others (Goldstein, 1999). Psychotherapy for schizophrenia is usually more intense than other mental health diagnoses. For example, individual therapy for schizophrenia is often offered more than once a week (Rosenblatt, 2010). PORT recommends that individual therapy for schizophrenia should be practiced for about 4 to 9 months with an

emphasis of coping skills for problems and symptoms (Kreyenbuhl et al., 2010). One study points out that the length of individual therapy should last for at least two years with in 1 to 3 sessions a week (Bachmann, Resch, & Mundt, 2003). Furthermore, the duration of effectiveness of individual therapy after the end of treatment is much longer, about 2 to 3 years, than family therapy (Rockland, 2010). Thus, participation in individual therapy for schizophrenia is suggested to be more than once a week for 9 to 12 months and the duration of its effectiveness can remain for 2 to 3 years after termination in studies.

Family Therapy

Unlike individual therapy, which focuses on relieving symptoms and coping with disrupted perceptions for individuals with schizophrenia, family therapy looks at schizophrenia from a systemic perspective by including family members in the sessions. Family therapy has played an important role in the treatment of schizophrenia. In fact, early studies incorrectly blamed the family as the root of the disorder (Bertrando, 2006; Lysaker & Silverstein, 2009). Double bind communication patterns between family members, especially the mother and the individual with schizophrenia, were seen as the cause of schizophrenia (Bateson, Jackson, Haley, & Weakland, 1956). Thus, family therapy has origins in treating schizophrenia. The families carried overwhelming burden of taking care of individuals with schizophrenia as well as being responsible for the etiology of the disorder.

Family psychoeducation. Family therapy is different from family psychoeducation in many ways. Family therapy focuses on changing interactional and interpersonal process, and redirecting communication patterns in a straightforward manner between family members (Bertrando, 2006). Unlike traditional family therapy approach, which sees family as the cause of the disorder, the family psychoeducational approach sees schizophrenia as a brain disorder

(McFarlane, Dixon, Lukens, & Lucksted, 2003). Family psychoeducation mainly focuses on "engaging families collaboratively, sharing disorder information, suggesting behaviors that promote recuperation, and teaching coping strategies that reduce the families' sense of burden" (McFarlane et al., 2003). Through family psychoeducational approach, family members receive the information they need about schizophrenia, and learn problem solving, coping, and communication skills to deal with the disorder (Dixon et al., 2001).

Early theories focused on the etiological role family plays in the development of the disorder (Marley, 2004). Today, schizophrenia is seen as a biological determined mental disorder, and its cause is not associated with family environments. McFarlane, Dixon, Lukens and Lucksted (2002) state that this biological determined disorder is usually only partially remediable by antipsychotic medication, and family can have considerable influences on recovery and maintenance of individuals with schizophrenia. Therefore, they state that family therapy, especially the family psychoeducational approach, shifted away from trying to modify family members' communication patterns to provide education and knowledge about how to facilitate recovery through the interaction between family members and the individuals with schizophrenia.

In spite of the irrelevance to the etiology of schizophrenia, family is still a significant component for recovery and maintenance of the disorder. Family psychoeducation is based on solid research findings to involve family members in the treatment plan for individuals with schizophrenia (Dixon et al., 2001). It primarily emphasizes on improving treatment outcomes for individuals with schizophrenia, and enhancing the wellbeing of the family is an essential intermediate outcome (Dixon et al., 2001). There are various ways to include family members in the treatment for this disorder. Family members can be involved in the treatment as a therapeutic agent (Dixon & Lehman, 1995). Coordinating to work with mental health professionals is

encouraged for family members who are seen as equal partners to plan and deliver schizophrenic treatments for individuals with schizophrenia (Dixon et al, 2001; McFarlane et al., 2003).

Dixon et al. (2001) explain that the formats for delivering family psychoeducation are categorized by the types of session, the duration of treatment, clients' participation, location, and the emphasis of the treatment. The types of sessions include multiple-family, single-family, or mixed sessions. The locations include clinic based, home, family practice, or other community settings. The emphasis of the treatment includes the degree of emphasis on didactic, cognitive behavioral and systemic techniques. Because the cause of schizophrenia is assumed to be biological, psychopharmacological treatment tends to be the preferred treatment. Family psychoeducation is used as a combination with psychopharmacological treatment (Dixon & Lehman, 1995). However, psychopharmacological treatment is usually the focus of schizophrenic intervention. Since the focus is on psychopharmacological treatment, the effectiveness of psychotherapy has been overlooked in much of the treatment research for schizophrenia. This is especially true for family therapy where family members usually do not understand why they need to be involved when individuals with schizophrenia and their symptoms are the focus of treatment and research. Marley (2004) describes that the role of the family has been ignored when growing research focuses on biological determination of the disorder and psychotropic medication is the main choice of the treatment. Therefore, in order for family therapy to receive more attention from families, clinicians, insurance companies, and policy decision makers, more studies are needed to demonstrate the cost effectiveness of family therapy for schizophrenia in managed care.

Providing family therapy for families with schizophrenia can help with the psychosocial and rational piece which medication cannot help. Also, family psychoeducation can increase

family members' wellbeing and decrease their stress (Dixon et al., 2010). Despite advances of research and clinical practices in psychopharmacological treatment, medication is limited to treating the biological symptoms for schizophrenia. It does not directly address patients' social relationships and functioning (Goldstein, 1999; Rockland, 2010). Because schizophrenia affects individuals mentally, emotionally psychologically, and socially, it is not enough to increase individuals' welfare by simply focusing on decreasing symptoms. Evidence-based research supports practice guidelines that meet the family members' need for information on the disorder, clinical guidance, and professional and emotional support for improvement of treatment outcomes and family well-being (McFarlane et al., 2002). Family therapy can help the families deal with the disorder more effectively and help enhance their wellbeing.

However, the current study is unable to distinguish traditional family therapy and family psychoeducation in the data set because of limited information. The data does not specify what kind of family therapy has been delivered by providers. Therefore, the content of family therapy remains unknown.

Expressed emotion. The level of expressed emotion (EE) has a crucial function in the evolution of family therapy for schizophrenia. A high level of EE in which family members are highly critical or emotionally over-involved, has been proved as a potential risk predictor for relapse of schizophrenia. Comparing to families with low levels of EE, individuals with schizophrenia are more vulnerable to relapse when their family members are having high levels of EE (Bertrando et al., 2006; McFarlane et al., 2002; Rockland, 2010). Thus, families with high EE are usually the targets because they are most likely to benefit from family psychoeducation (Dixon & Lehman, 1995).

Because of the significant correlation between family members' EE levels and relapse rates for schizophrenia, family intervention is imperative for schizophrenic treatment to reduce relapse rate by decreasing family members' EE levels. Rockland (2010) says that reduced relapse rate is from decreased family members' EE levels in family therapy. Moreover, most of family therapy with a goal of decreasing family EE levels is more likely to produce lower relapse rates, duration of hospital stays, and levels of antipsychotic drugs. Thus, family therapy is where the EE issues can be addressed appropriately in order to reach these positive outcomes for individuals with schizophrenia when family members are present in the session together. Decreasing family member's levels of EE can be accomplished in family therapy to maximize treatment outcomes and families' welfare. Bertrando et al. (2006) indicate that 67 % of individuals with schizophrenia in families with high levels of EE relapsed, and family therapy can decrease family member's levels of EE by 40 % and the relapse rate for individuals with schizophrenia by 50 %. The same study points out that family therapy reduces relapse rate by decreasing the levels of EE in the family members with lowering levels of criticism and increasing levels of warmth (Bertrando et al., 2006). Moreover, studies indicate that psychoeducational family therapy can also better the functioning and well-being of the families and individuals with schizophrenia (Dixon & Lehman, 1995; McFarlane et al., 2002). Thus, providing family therapy makes it possible to intervene with the family members' level of EE. This helps to lower relapse rate and further improve welfares for individuals with schizophrenia and their families.

The effectiveness of family therapy. Family therapy was one of earliest psychotherapies with positive results for schizophrenia, and it started an optimistic view of psychotherapy treatments for this disorder (Rockland, 2010). Family therapy has also been corroborated as an

effective treatment for schizophrenia by various studies across several countries (Bressi et al., 2008; Dixon et al., 2010; von Sydow et al., 2010). Research shows that family therapy is effective to alleviate symptoms (Dixon et al., 2010; McFarlane et al., 1995; Randolph et al., 1994), lower relapse and rehospitalization rates (Dixon et al., 2010; Falloon & Pederson, 1985; Pitschel-Walz, Leucht, Bäuml, Kissling, & Engel, 2001; Rockland, 2010; von Sydow et al., 2010), be aware of caregivers' and patients' needs other than medications (Dixon et al., 2010; Dixon & Lehman, 1995; Falloon et al., 1985), and increase patients' compliance with medication (Dixon et al., 2010; von Sydow et al., 2010). It is also a beneficial treatment to expand quality of life (Dixon et al., 2010; Falloon & Pederson, 1985), increase patients' participation in vocational rehabilitation (Dixon et al., 2010; Falloon et al., 1985), substantially increase employment rates (McFarlane et al., 1995), decrease family medical illnesses and medical care utilization (Dyck, Hendryx, Short, Voss, & McFarlane, 2002; Rockland, 2010), and reduce costs for society (McFarlane et al., 1995; von Sydow et al., 2010). Thus, by including family therapy in the treatment for schizophrenia, it is possible to strengthen social support, reduce family burden, rebuild the environment the individual suffering from schizophrenia lives in, and reconstruct interactions between family members. Since research has illustrated the effectiveness of family therapy, it is imperative to assess how frequently family therapy is used in managed care.

When compared to individual therapy, family psychoeducation for schizophrenia has remarkably lower relapse and rehospitalization rates, with these rates cut by as much as 50% over two years (Dixon, Adams, & Lucksted, 2000; Dixon et al., 2001; Dixon & Lehman, 1995; Goldstein & Miklowitz, 1995; McFarlane et al., 2002; Pitschel-Walz et al., 2001). The reduction of relapse rate can even reach 75 % with more time (McFarlane et al., 2002). In addition to decrease relapse rates, family therapy also can shorten the number and length of hospitalization

and decrease antipsychotic medication dosage (Rockland, 2010). Moreover, decreasing rehospitalization rates means family therapy does not only enhance the competence of family members in dealing with the disorder, but also can reduce the occurrence of acute crises considerably (Pitschel-Walz et al., 2001). However, Dixon and Lehman (1995) assert that the effect of family therapy is to delay rather than to prevent relapse for schizophrenia.

Effective family therapy does not only provide psychoeducation, but also offer problem solving skills and coping skills training. Family therapy that uses techniques of engagement, support, and problem solving in addition to psychoeducation is superior to family therapy with brief psychoeducation only (Dixon & Lehman, 1995). Because it may require more than education to ease family burden of dealing with the disorder and enhance treatment outcomes (McFarlane et al., 2002), problem solving and coping skills training can help patients function better to release family burden. The effectiveness of family therapy has been demonstrated to provide problem solving skill, expanded social support, crisis intervention, and communication skills training (Lehman, Steinwachs, & the Co-Investigators of the PORT Project, 1998; McFarlane et al., 2002). No matter what family therapy focuses on, adding problem solving skills and coping skills in the treatment predicts better outcomes and lower relapse rates.

Long term participation in family therapy appears to be better than short term participation to achieve successful treatment outcomes. Families and individuals with schizophrenia are recommended to be involved in family therapy for at least 3 to 12 months (Dixon et al., 2010; Lehman et al., 1998; Linszen et al., 1996; McFarlane et al., 2002). Family psychoeducation usually lasts nine months to five years (Dixon et al., 2001). There is stronger evidence with better outcomes when the period of family therapy is longer (Rockland, 2010). Intensive therapy is also statistically better than brief treatment (Pitschel-Walz et al., 2001).

Although there is no definition of intensive therapy in Pitschel-Walz et al.' article (2001), intensive therapy is defined as a treatment that is usually offered more than once a week by Rosenblatt (2010). Thus, studies suggest that long term and intensive family therapy produces more positive outcomes.

Providing family therapy is a benefit to the individual who suffers from schizophrenia, as well as, their family members. Individuals with schizophrenia in family therapy show less behavioral disturbance, have improved functioning, obtain better family relationships, and have more friends (Dixon & Lehman, 1995). In addition, the PORT suggests that through family therapy, family members have lower levels of distress and higher satisfaction with family relationships (Dixon et al., 2010). Through examining numerous studies, (Dixon & Lehman, 1995) found that family members perceive themselves with fewer burdens, more satisfaction, and better well-being when they participate in family therapy. Family therapy can improve mental and physical health for individuals with schizophrenia as well as their family members (Rockland, 2010). Taking into account the family members' stress will assist clinicians to provide a better service to benefit the individual with schizophrenia and ease the burden of their families. From a systemic perspective, clinicians who work with this population need to adopt better understanding and knowledge to meet the family's needs and wants in different stages of life cycle for the family to be well prepared to decrease conflict and increase adaptation at home (Marley, 2004). Although schizophrenic symptoms are usually the focus of the treatment, the impact of family therapy on other family members cannot be overlooked. Furthermore, most research studies look at the effectiveness of family therapy and exclude addressing cost effectiveness of family therapy. Since treating schizophrenia is expensive and family therapy is

an effective treatment, the current study opens a door to explore if family therapy is cost effective in managed care.

There is limited research comparing individual and family therapy for the treatment of schizophrenia. Research that compares the two treatment modalities has varied outcomes. One meta- analysis concluded that some studies show that family therapy is superior to individual therapy by leading to a lower relapse rate, but other studies show no differences or even the opposite result (Pitschel-Walz et al., 2001). Rockland (2010) claims that studies show family therapy produces lower relapse rate even 12 months after the termination when compare to individual therapy. However, no research has compared dropout rate and cost effectiveness of individual and family therapy in managed care.

Because both individual and family therapy are effective treatments in research, it is needed to compare which modality is more cost effective to ensure health care cost for psychotherapy is spent effectively. There are limited studies comparing individual therapy with family therapy. Thus, the current study is helpful to add a piece of information in the gap in research by comparing dropout rate and cost effectiveness of individual and family therapy.

Dropout

Dropout from psychotherapy is also called early termination or premature termination. The operational definitions of dropout vary from study to study. Masi, Miller, & Olson (2003) portray four common concepts for operational definition of dropout. The first concept defines a certain number of sessions as cut off points, and dropouts are those who terminate therapy before cut off points. The second concept of dropout is based on therapists' opinions, and dropouts are those who terminate therapy before therapists thought they should. The third concept is a combination of the first two concepts in which dropout is based on cut off points and therapists'

opinions. The last concept defines dropout as if clients show up for therapy after an intake interview or not. Other definitions for dropout include: clients do not attend an intake session after referral, clients do not come in for first session after an intake, clients do not keep scheduled appointment, or clients do not attend a certain number of sessions (Connell, Grant, & Mullin, 2006). There is no consistent operational definition of dropout in research studies. However, it is common to define dropout by using a cut off number of sessions (Hamilton, Moore, Crane, & Payne, 2011). Therefore, dropout in the current study is based on a cut off number of one session in first Episodes of Care.

Studies vary in their reports on dropout rates for schizophrenia. Dropout rates for individual therapy for schizophrenia ranges from 14% to 70% (Gunderson et al., 1984; Tarrier, Yusupoff, McCarthy, Kinney, & Wittkowski, 1998). Dropout ranges from 29% to 50% for family therapy (Hamilton et al., 2011; Schooler et al., 1997). A three year study examining individuals with schizophrenia living with or without their families suggested that the dropout rate for individual therapy for schizophrenia is about 18% over 3 years and those who live with their families have slightly lower dropout rates than those who live alone (Hogarty et al., 1997). The Boston Psychotherapy Study reports that dropout rate for individual therapy can reach over 40% by 6 months, and almost 70% by two years (Gunderson et al., 1984). Moreover, schizophrenia tends to have higher psychotherapy dropout rate than other mental illnesses. Hamilton et al. (2011) compared dropout rate in numerous illnesses in managed care found that psychotherapy dropout rate for schizophrenia can reach 29%, while dropout rate for Anxiety and Mood Disorder is only about 18%.

The difference between dropout rate for individual and family therapy for schizophrenia is still unclear. Some studies illustrate that family therapy tends to have higher dropout rate than

individual therapy (Hamilton et al., 2011; Hogarty et al., 1997), while other research suggests there is no significant difference across treatment modalities (Masi et al., 2003). Schooler et al. (1997) suggest that the dropout rate of family therapy for schizophrenia could be more than 50% in 24 months. Other research shows that it could be about 18% over 3 years for individual therapy (Hogarty et al., 1997). However, some studies indicate that the dropout rate for individual therapy can reach more than 50 % (Goldstein, 1999; Gunderson et al., 1984). Thus, the dropout rate of psychotherapy for schizophrenia is different in various studies, and the current study is able to provide more information to understand psychotherapy dropout rate for schizophrenia in managed care.

Cost effectiveness & Cost of treatment

Various studies have investigated cost effective treatment for schizophrenia on pharmacotherapy (Lewis, 2010; McIntyre et al., 2010) and electroconvulsive therapy (Greenhalgh, Knight, Hind, Beverley, & Walters, 2005), but there is scant research on cost effectiveness of individual and family therapy in managed care. Schizophrenia is financially and emotionally overwhelming. It is imperative to investigate the costs and cost effective treatments of this disorder.

Healthcare costs. Families of individuals with schizophrenia suffer from financial, emotional, and psychological stress (Addington, Collins, Mccleery, & Addington, 2005; Knapp, Mangalore, & Simon, 2004). Medication and hospitalization have been the major treatments for schizophrenia but are not the only costs. Research shows that hospitalization comprises about 70% to 80% of direct costs that decreases significantly with time, and loss of productivity is accounted for the largest proportion of indirect cost that remains the same over time (Fitzgerald et al., 2007). Direct costs, such as medication and hospitalization, are more constant than indirect

costs, such as family impact and lost productivity (Heider et al., 2009; Knapp et al., 2004; Salize et al., 2009; Wu et al., 2005). Indirect costs can be much higher than direct costs for treating schizophrenia (Knapp et al., 2004; Wu et al., 2005). These findings illustrate that family impact and lost productivity actually cause greater economic burden than medication and hospitalization. Moreover, it implies that psychotherapy could become more important and effective to deal with the issues related to indirect cost including family impact and lost productivity.

Rice & Miller (1996) estimated the value of time that family members spent on taking care of individuals with schizophrenia was estimated to be 17 % of indirect costs with $2 billion in 1985 and $2.5 billion in 1990. The patients' unemployment and the caregivers' physical, emotional, and psychological health always cause extra expenses for the families. Therefore, sometimes it is not enough to improve their lives by only including the individuals with schizophrenia in the treatment without considering family members' strain.

Cost effectiveness of individual therapy. Rockland (2010) points out that including psychotherapy in schizophrenic treatment may increase costs in the beginning, but the increased costs can be offset by the savings from reduced relapse rate, re-hospital admission, and duration of hospital stays, and the overall costs are remarkably reduced. Thus, incorporating psychotherapy does not add additional financial burdens for the family or society in the long term. Additionally, a study from WHO found that combining psychotherapy with medication treatment can generate greater cost effectiveness than providing medication treatment only (Chisholm et al., 2008). Gutierrez-Recacha et al. (2006) argue that psychosocial therapy, including family psychotherapy, social skills training and cognitive-behavioral therapy enhances patients' health gains, medication compliance and treatment cost effectiveness than receiving pharmacotherapy alone. Higher medication compliance significantly enhances treatment

outcomes, and lower hospitalization rates significantly reduce total cost for schizophrenia. Because of its lower cost and better treatment outcomes, combining psychotherapy with medication becomes the most cost effective treatment for individuals with schizophrenia in research (Gutierrez-Recacha et al., 2006). Both individual and family therapy can maximize their effectiveness by raising health gains significantly and their cost effectiveness by increasing medication compliance and reducing hospitalization rates (Gutierrez-Recacha et al., 2006). Therefore, the effectiveness and cost effectiveness of psychotherapy can further reduce burden of schizophrenia on their families and society. However, the comparison of cost effectiveness of individual and family therapy will be examined here.

Cost effectiveness of family therapy. Family therapy treatment for schizophrenia has been shown to be cost effective, decreasing relapse rate, and increase family health, well-being, and function (Rockland, 2010). The National Collaborating Centre for Mental Health (2010) and the Schizophrenia Patient Outcomes Research Team (PORT) have recommended including family therapy in the treatment of schizophrenia (Kreyenbuhl et al., 2010). The effectiveness of family therapy for schizophrenia has been validated by a number of studies, and the cost effectiveness of the treatment is still needed to be further examined. With limited knowledge about cost effectiveness, total cost seems to be the target of studies to evaluate how expensive it is to treat schizophrenia. The Parachute project from Sweden points out that early intervention with family members involved for the disorder can significantly reduce the total costs for schizophrenia because of lower inpatient care (Cullberg et al., 2006). Moreover, studies show that individuals with schizophrenia receiving family therapy have significant lower relapse rates even after 2 years and the total costs of family therapy are 19 % less than individual therapy (Falloon et al., 1982; Falloon & Pederson, 1985). Rockland (2010) assesses various studies and

found that total costs can be reduced by 37% to 50% by including family therapy in schizophrenic treatments. This may suggest that family therapy is more cost effective than individual therapy by producing the same or even better outcomes and lower total costs.

Research on the cost effectiveness of family therapy for schizophrenia treatment in Australia suggests that family therapy is cost effective (Mihalopoulos et al., 2004). Furthermore, behavioral interventions for families are the most cost effective treatments when compared to behavioral family management and multiple family groups. While family therapy appears to be cost effective, it does not receive much attention in mental health practice or in mental health training at the graduate and post-graduate levels.

The intent of the current study is to examine the cost effectiveness of individual and family therapy for treating schizophrenic clients and their families in managed care. As Lehman (2009) states "the science provides the most important lesson that with the application of treatments already available, outcomes can be better" (p. 660). Because there is little research exploring cost effectiveness, dropout, and treatment modalities for schizophrenia treatment. Many studies explore dropout and cost effectiveness without comparing them between treatment modalities (Chisholm et al., 2008; Hogarty et al., 1997; Mihalopoulos et al., 2004). Therefore, by examining and comparing the costs effectiveness, the recidivism rate, and the dropout rate between individual and family therapy, the current study provides an opportunity to expand researchers', clinicians', and families' understanding of schizophrenic treatment in managed care.

Research Questions

The purpose of the study is to compare the cost and treatment outcome of schizophrenia by different professionals providing different types of modalities, the following research questions were considered:

Question 1: What is the cost effectiveness of individual, family and mixed modes of therapy for schizophrenia treatment?

Question 2: What are the dropout rates of the professions and treatment modalities for individuals suffering from schizophrenia?

Method

Design

This study examined retrospective administrative data from CIGNA, one of the leading health care insurers in the United States. Six years of outpatient data (2001–2006) and more than 20,000 psychotherapy medical claims of schizophrenia for 2,151 unique patients were included in this study. Claims data were limited to the following information: (1) a client identification number, (2) date of claim, (3) amount paid for the claim, (4) ICD 9 diagnosis, (5) patient gender, (6) patient's age on date of service, (7) service location by state, (8) type of service provided, and (9) provider license.

Sample

The participants are schizophrenic outpatients who received services for individual and family therapy mode from CIGNA during 2001 - 2006. The services provided in this study are limited to outpatient claims. The age range of patients in the data set is from 6 to 90 (M = 39.10, SD = 15.38). There are several childhood onset schizophrenia clients in the data set. Although the onset of schizophrenia mostly is from age 15 to 35 (World Health Organization, 2007), studies show that childhood-onset schizophrenia is possible (Asarnow, 2005; Green, Padron-Gayol, Hardesty, & Bassiri, 1992). Also, the DSM IV-TR explains “the onset of schizophrenia typically occurs between the late teens and the mid-30s., with onset prior to adolescence rare, although cases with age at onset of 5 or 6 years have been reported” (American Psychiatric

Association, 2000, p. 307). Therefore, schizophrenic outpatients whose age is less than 15 were included in the analyses (N = 60). The gender mix of patients included 1,079 female (50.20%) and 1,071 male (49.80%). Healthcare providers included medical doctors (MDs), psychiatric nurses, psychologists, social workers, licensed counselors, and marriage and family therapists (MFTs). The demographic characteristics of the sample are shown in Table 1.

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Insert Table 1 About Here

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The use of administrative data in the current study is regulated by the Health Insurance Portability and Accountability Act of 1996 (HIPAA) to protect personal health care information for its confidentiality. No unique subscriber or provider information from the data provided can be identified. Names and all personal identifying information for each patient in the data are replaced with a unique and non-identifiable client identification number.

Procedure and Definitions

Data Cleaning. The data set used in the current study was created from a larger data set utilizing specific selection criteria. For a full explanation of the data cleaning procedure, see Crane & Payne (2011).

Schizophrenia. A severe chronic disorder with a minimal probability to return to full premorbid functioning (American Psychiatric Association, 2000, p. 309).

Episodes of Care (EoC). EoC are defined as a continuous series of services for the same patient. An EoC begins with the first psychotherapy service and ends when the same patient had no psychotherapy claims for 90 days or more. In the first EoC, the number of sessions per client ranged from 1 to 183 (M = 10.46, SD = 14.07). However, more than 65% of all clients ended

therapy with the first EoC. For the purposes of the current study, treatment success and recidivism are depended on the data from the first EoC only.

Family therapy. Family therapy in this study is defined by Current Procedural Terminology (CPT) code 90846 as conjoint psychotherapy with patient present (American Medical Association, 2006, p. 278).

Individual therapy. Individual therapy in this study is defined by Current Procedural Terminology (CPT) code 90806 as "an insight oriented, behavior modifying, and/or supportive treatment in an office or outpatient facility, approximately 45 to 50 minutes face-to-face with the patient" (American Medical Association, 2006, p. 277).

Treatment success. Treatment success is defined as patients who used only one EoC in the time frame of the study (Crane & Payne, 2011). This definition of treatment success is chosen because of its use in previous studies (Crane & Payne, 2011; Moore, Hamilton, Crane, & Fawcett, 2011). However, this definition may or may not be the best measurement of treatment success for this particular population because of severity and chronicity of this disorder. Since schizophrenia is a chronic illness, it may be better for schizophrenic outpatients to maintain continuous treatment to stabilize their illness course.

Recidivism. Recidivism is defined as the same patient who returned to therapy for a second (or more) EoC with the same provider type and diagnosis (Crane, 2008; Crane & Payne, 2011; Crane & Payne, 2007; Moore et al., 2011). Due to the chronic nature of schizophrenia, this definition of recidivism may or may not depict the full story of treatment outcomes for this disorder. One goal of the current study is to gain a better understanding of recidivism trends in the real world of managed care. Though this definition may not fully capture the influence of

treatment on a chronic disorder such as schizophrenia, it does provide a description of when clients with schizophrenia return for additional episodes of care in mental health treatment.

Services. Data for all outpatient psychotherapy charges billed for schizophrenia were available. Claims provided a Current Procedural Terminology (CPT) code of individual psychotherapy therapy (90806) or family psychotherapy therapy (90847) (American Medical Association, 2006).

Cost. The cost of treatment is the dollar amount paid by CIGNA to the treatment provider for each therapy service.

Cost effectiveness. As in the studies by Crane (2008), Crane & Payne (2011) and Moore et al. (2011) regarding the cost effectiveness of treatments, the cost-effectiveness formula is:

Estimated cost effectiveness = 1^{st} EoC average cost + (1^{st} EoC average cost * recidivism rate). A cost effectiveness formula was created to compare different types of therapy treatments and professions based on treatment cost and recidivism rate.

Therapy dropouts. Psychotherapy dropouts are defined as patients attending only one session of therapy in the first EoC (Hamilton et al., 2011; Johansson & Eklund, 2006). High percentage of dropouts in the data set can lead to artificial low costs and recidivism rates, which can generate artificially high treatment success, for the services because the clients only pay one session for the services without coming back and the services are not necessary successful. Artificial low costs and recidivism rates can produce artificial low cost effectiveness and high treatment success of the services. Therefore, those with only one treatment session were eliminated from subsequent analysis.

Preliminary Analyses

In cost effectiveness analysis, both raw data and log data are presented here. Actual dollar amounts for treatment modalities are not normally distributed and the data were positively skewed. A ratio of the skewness to the standard error should be between +2 and -2 to fit into one of the assumptions of linear regression, normality. For actual dollar amounts, skewness is 3.909 (*SD* = 0.53), so the ratio of the skewness to the standard error is 7.38. Because the residuals are excessively skewed and not normally distributed, it violates the assumption of normality assumed by many statistical analyses. In order to address this problem, the data has been log transformed into a normal distribution. After log transformation, skewness is -0.018 (*SD* = 0.53), and the ratio is -0.003. Thus, the data fits normality in linear regression. Both raw data and log data are presented here to provide a better understanding of cost and cost effectiveness in managed care. Providing the results of actual dollar amounts is more meaningful to represent real world monetary costs.

Moreover, 371 cases that were defined as dropout were eliminated from the cost effectiveness analysis in order to avoid artificial low costs and recidivism rates, which could create artificial high treatment success and cost effectiveness of psychotherapy. 283 cases who received both individual and family therapy were presented separately in this analysis because it would make the comparisons between individual and family therapy difficult without separating these mixed therapy cases. However, presenting mixed therapy cases here could provide a better understanding of cost and cost effectiveness for psychotherapy in managed care. Dummy variables were created for individual and family therapy. Individual therapy was used as the reference variable for statistical comparison.

Clients' gender and age are assumed to have a significant impact on results, so they are controlled in all comparison analyses. In addition to clients' gender and age, provider type is assumed to have a significant impact on health care costs and statistically controlled in analyses of psychotherapy costs and cost effectiveness.

Results

Question 1. The first research question dealt with the differences of cost effectiveness between individual and family therapy for individuals with schizophrenia in the first EoC.

In order to determine if the cost differences between the treatment modalities are significant, ordinary least squares regression was run, with actual dollars and log dollars as the dependent variable and treatment modalities as independent variables. Age, gender and provider types were controlled in the preliminary analysis. The comparison between individual and family therapy, for both actual dollars and log dollars, is shown in Table 2. When statistically controlling for the effects of age, gender and provider type, on average, family therapy is about $221 less expensive than individual therapy for the first EoC at a statistical significance level, b=-.073, t(1344)=-2.649, p<.01. A comparison of the log transformed distribution of cost of therapy also showed that family therapy is less expensive than individual therapy at a statistical significance level of b=-.098, t(1344)=-3.545, $p < .001$. When statistically controlling for the effects of age, provider type and treatment modalities in the model, on average, psychotherapy treatment for female patients costs almost $89 more than treatment for male patients, b=-.059, t(1344)=2.15, p<.05. After transforming the data into a normal distribution, only variables provider type and treatment modalities are statistically significant.

Insert Table 2 About Here

Statistical differences for recidivism between individual and family therapy were determined by binary logistic regression while controlling for the effects of age and gender. Logistic regression was used when the dependent variable was dichotomous, having only two values: 0 or 1. Recidivism was coded as a dichotomous variable.

After statistically controlling for the effects of age and gender, on average, the odds of recidivism among participants in individual therapy are 1.36 times (31%) greater than the odds of recidivism among family therapy. There was a statistically significant difference between recidivism rates by treatment modality, $\chi 2$ (1, N =1497) = 19.58, $p < .001$.

Results for actual dollars and recidivism rates are shown in Table 3. Mean values of costs and recidivism by modalities were entered into cost effectiveness formula to estimate cost effectiveness of individual and family therapy. In family therapy, mean value of costs is $333.87 (*SD* =395.53) and of recidivism is 14% (*SD* =0.35). In individual therapy, mean value of costs is $625.15 (*SD* =823.29) and of recidivism is 43% (*SD* =0.49). Results for actual dollars and recidivism rates of mixed therapy are also presented here. In mixed therapy, mean value of costs is $824.12 (*SD* =800.30) and of recidivism is 51% (*SD* =0.50). By entering these data into cost effectiveness formula, cost effectiveness of family therapy is $380.55, $890.53 for individual therapy, and $1243.43 for mixed therapy.

Insert Table 3 About Here

Results for log dollars and log cost effectiveness are shown in Table 4. With the normally distributed data, the mean log cost is 5.43 (*SD* = 0.82) for family therapy, 5.89 (*SD* = 1.03) for

individual therapy, and 6.30 (*SD* = 0.93) for mixed therapy. By entering these data into the cost effectiveness formula, log cost effectiveness is 6.19 for family therapy, 8.39 for individual therapy, and 9.51 for mixed therapy.

Insert Table 4 About Here

Question 2. The second research question dealt with the dropout rates of each profession and treatment modality for individuals suffering from schizophrenia. The frequency and proportion of dropout rates for each profession and modality are shown in Tables 5 and 6. Table 5 shows that when statistically controlling for the effects of gender and age in the model, the mean dropout rate is 39% for MDs, 19.4% for psychiatric nurses, 16.3% for licensed counselors, 14.3% for social workers, 14% for MFTs, and 12.9% for psychologists. Table 6 shows that when statistically controlling for the effects of gender and age in the model, the mean value of dropout rates, on average, is 18% for individual therapy, and 42% for family therapy.

Insert Table 5 About Here

Insert Table 6 About Here

Binary logistic regression was run to determine if the differences between professions and modalities for dropout rates are statistically significant. Results show that when statistically adjusting for the effects of age and gender, on average a significant difference of dropout rates

was found on profession, $\chi 2$ (1, N =2150) = 20.49, $p < .001$, as well as on treatment modality, $\chi 2$ (1, N =1497) = 51.87, $p < .001$.

Discussion

The first research question dealt with the cost effectiveness of individual and family therapy for individuals with schizophrenia in the first EoC. Although previous studies show that both individual and family therapy are cost effective treatments for schizophrenia (Gutierrez-Recacha et al., 2006; Rockland, 2010), no research has examined and compared cost effectiveness for these two treatment modalities in managed care. The findings from the current study show that family therapy has lower cost and recidivism rates. Thus, family therapy appears to be more cost effective than individual and mixed therapy in managed care. Also, clients who attended individual therapy are 31% more like to come back for psychotherapy service for the second EoC than clients who attended family therapy. This suggests that family therapy results in greater treatment success with lower treatment costs than individual therapy. However, the definition of treatment success may or may not be appropriate for this particular population because of severity and chronicity of schizophrenia.

The second research question dealt with the dropout rates of each treatment modality and profession for individuals with schizophrenia. There is scant research on the influence of professions and treatment modalities on dropout rates on these issues. The current study shows that dropout rates are 39% for MD, 19.4% for psychiatric nurses, 16.3% for licensed counselors, 14.3% for social workers, 14% for MFTs, and 12.9% for psychologists. Thus, medical doctors have the highest and psychologists have lowest dropout rates. Moreover, comparisons of dropout rates, between individual and family therapy, are unclear in previous research. Some studies point out that dropout rates are generally higher among family therapy than among individual

therapy (Hamilton et al., 2011; Hogarty et al., 1997; Shapiro & Budman, 1973). However, others argue that there is no significant difference of dropout rates between these two treatment modalities (Masi et al., 2003; Russell, Szmukler, Dare, & Eisler, 1987). The findings of the current study indicate that dropout rates are 42% for family therapy and 18% for individual therapy. Thus, the dropout rates are two times higher among family therapy than among individual therapy. The findings of the current study support previous research in which presents family therapy has higher dropout rates than individual therapy. However, if a provider can successfully engage and retain entire families in care, the overall cost is lower.

Family therapy may have higher dropout rates because it is harder to coordinate participation in family therapy, compared to individual therapy. Kazdin and associates state that clients are more likely to dropout when there are more obstacles to therapy for them (Kazdin et al., 1997). Due to the complexity of each family member's schedule and willingness to attend therapy, it is more difficult for clients to attend family therapy together. In addition, it is harder for therapists to obtain and maintain a congruent and positive alliance with each family member (Hamilton et al., 2011; Johnson & Wright, 2002; Masi et al., 2003). Family therapy tends to be more complex than individual therapy by the nature of including more people, which multiplies the interactions and client characteristics in the therapy room. Masi et al. (2003) explain that there are more challenges to develop positive alliance in family therapy than in individual therapy, and this increases the risk of dropout in family therapy.

Also, Hamilton et al (2011) suggest that high dropout rates for family therapy may also be caused, at least in part, by a lack of therapist training in dealing with multiple family members. Though most mental professionals receive education and clinical training for treating individuals, marriage and family therapists are the only professionals whose license requirements include

extensive education and clinical training related to treating more than one person in the therapy room (Crane et al., 2010). Thus, marriage and family therapists were expected to have lower dropout rates for family therapy among mental health professionals. However, the data shows that there is no statistically significant difference of dropout rate for family therapy among mental health professionals in the current study. More studies are needed to better our understanding why dropout rate of family therapy is not lower when provided by marriage and family therapists.

Given the high dropout rates, it is unlikely for family therapy to be attractive to service users as the sole treatment approach. The high dropout rates and low recidivism rates of family therapy may suggest that it is difficult to use family therapy as a sole treatment modality. Rather, family therapy may be more likely to be useful when combined with individual therapy to give a mixed format service. However, mixed therapy has highest cost, cost effectiveness and recidivism rates among all service modalities. Thus, individual therapy may be a better treatment approach for this particular population, at least from a cost perspective, since family therapy has high dropout rates, and mixed therapy has highest costs and recidivism rates.

Moreover, the psychotherapy providers in this study can be categorized into two broad categories: bio-medical providers and talk therapy providers. The treatment methods could be fundamentally different for these two types of providers. Therefore, it could be inaccurate to compare bio-medical providers with talk therapy providers.

Limitations

The findings of this study need to be considered with a degree of caution. Limitations of the current study include: a small sample size of family therapy cases, questions about the operational definition of treatment success, and the possible inadequate definition of recidivism.

First, this study has relatively small sample size of family therapy compare to individual therapy. Although the current study contains 2,151 unique schizophrenic outpatients, only 93 outpatients attended family therapy without dropout compared to 1497 outpatients who attended individual therapy without dropout. The small sample size of family therapy documents a limited utilization of this treatment modality in the real world situations. Family therapy has been used infrequently for treating schizophrenia even though it has been shown to be an effective treatment (Dixon et al., 2001; Dixon & Lehman, 1995; Falloon & Pederson, 1985; Lehman, 2000).

Family therapy was once used intensively in inpatient settings, but its use might be deceasing because of the emergence of psychopharmacological treatments and psychiatric deinstitutionalization. Early family theorists associated family functioning with the development of schizophrenia (Ackerman, 1958; Aderhold & Gottwalz, 2004; Bateson et al., 1956; Bertrando, 2006; Jackson, 1957). However, as the biological perspective on the disorder has become more widely accepted, the use of family therapy or family psychoeducational treatments seems to have decreased. Also, when many psychiatric hospital were closed, and patients moved to community care, family involvement seems to have decreased-even as the need to utilize community and family support has increased (Aderhold & Gottwalz, 2004; Bertrando, 2006).

Second, although family therapy has more treatment success in the current study, it is unknown if the effect is coming fully from family therapy. Schizophrenia can be treated with psychotherapy and psychopharmacological treatments. However, clients may or may not receive both treatments at the same time. There is no information related to the use of psychopharmacological treatments in addition to psychotherapy in the present study. Thus, there are possible confounding variables for which it was not possible to control in the current study.

Third, the definition of recidivism has been developed to provide a general idea for various diagnoses and may or may not be appropriate in this specific case. Since schizophrenia is a chronic disorder, it may be better for individuals with schizophrenia to come back to treatment for second or more EoC because continuing treatment means a stable illness course. Thus, recidivism may not be the best measurement for this population.

Moreover, the age range of clients in the study is from 6 to 90 (M = 39.10, SD = 15.38). The findings in this study need to be explained carefully when considering childhood-onset schizophrenia. The research suggests that childhood onset schizophrenia has an impact on the disorder's complexity, duration, and the individual's personal and family functions (Hall & Bean, 2008). Thus, the nature of childhood onset schizophrenia could be quite different from adolescent onset or adult onset schizophrenia. The findings in this study may or may not properly apply to childhood onset schizophrenia. Including childhood onset schizophrenia cases in this study is to provide a general idea for this disorder in managed care. Future research is needed to distinguish differences in therapy outcomes for childhood onset, adolescent onset or adulthood onset schizophrenia.

Conclusions and Clinical Implications

This study investigated differences in total cost, cost effectiveness and dropout rates between individual and family therapy. Results show that family therapy is a more cost effective treatment, with lower recidivism rates when compared to individual therapy. Cost effectiveness of family therapy is $380.55, while of individual therapy is $890.54 and of mixed therapy is $1,243.43. Clients who attend individual therapy are 31% more likely to come back for the second EoC than those who attend family therapy. However, clients who attend family therapy are 18% more likely to dropout of the treatment than those who attend individual therapy.

The purpose of this study is to present how schizophrenia has been treated in the real world of managed care. The value of this study is to provide descriptive information about cost, cost effectiveness and dropout rates for schizophrenia. It demonstrates that family therapy is a more cost effective treatment modality than individual and mixed therapy in managed care even though it has higher dropout rates. Through comparing the cost and cost effectiveness of family and individual therapy in CIGNA, it becomes possible to understand how psychotherapy is administered for schizophrenia in the real world situations. This study opens a door to understanding what is really going on for individuals with schizophrenia and their families who have insurance with managed health care systems in the United States.

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Table 1

Patient Demographic Characteristics

	Frequency	Percentage
Age		
0- 14	60	2.8%
15-29	625	29%
30-44	604	28.1%
45-59	688	32%
60-74	152	7.1%
75-90	22	1%
Gender		
Male	1071	49.8%
Female	1079	50.2%
Treatment Provider License		
MSWs	783	36.4%
Psychologists	487	22.6%
Counselors	319	14.8%
MDs	223	10.4%
MFTs	93	4.3%
Psychiatric nurses	31	1.4%
Modality		
Individual	1708	79.4%
Family	160	7.4%
Mixed	283	13.2%

Diagnosis		
295 – Schizophrenic disorders	15	0.7%
295.1 – Schizophrenic disorders: Disorganized Type	32	1.5%
295.2- Schizophrenic disorders: Catatonic Type	12	0.6%
295.3- Schizophrenic disorders: Paranoid Type	614	28.5%
295.4- Schizophrenic disorders: Schizophreniform disorder	74	3.4%
295.5- Schizophrenic disorders: Latent schizophrenia	17	0.8%
295.6- Schizophrenic disorders: Residual Type	66	3.1%
295.7- Schizophrenic disorders: Schizoaffective disorder	1134	52.7%
295.8- Schizophrenic disorders: Other specified types of schizophrenia	6	0.3%
295.9- Schizophrenic disorders: Unspecified schizophrenia	181	8.4%

Table 2

Comparison Cost for Family Therapy

	Raw Dollars	Log Dollars
EoC1_Age	1.162	.000
Female	88.759*	.078
EoC1_6_Licenses_Numeric	52.377***	.081***
EoC1_family_therapy	-220.611**	-.395***

*Note. *p<.05, **p<.01, ***p<.001*

Table 3

Total Dollar, Recidivism Rates and Cost Effectiveness

	N	Total $ (raw)	SD$ (raw)	Recidivism	SD	Raw Cost Effectiveness
Family Therapy	93	333.87	395.53	0.14	0.35	380.55
Individual Therapy	1404	625.15	823.29	0.42	0.49	890.54
Mixed Therapy	283	824.12	800.30	0.51	0.50	1243.43

Table 4

Log Dollar and Log Cost Effectiveness

	N	Log $	Log$ SD	Log Cost Effectiveness
Family Therapy	93	5.43	0.82	6.19
Individual Therapy	1404	5.89	1.03	8.39
Mixed Therapy	283	6.30	0.93	9.51

Table 5

Dropout Rates for Each Provider Type

	N	Frequency	Percentage	Mean	Std. Deviation
Bio-medical Providers					
MDs	223	87	39.01%	.3901	.48888
Psychiatric nurses	31	6	19.35%	.1935	.40161
Talk Therapy Providers					
Counselors	319	52	16.30%	.1630	.36995
MSWs	783	112	14.30%	.1430	.35034
MFTs	93	13	13.98%	.1398	.34864
Psychologists	487	63	12.94%	.1294	.33595
Missing data	215	38			
Total	2151	371	100.0	.1720	.37748

Table 6

Dropout Rates for Treatment Modality

	N	Frequency	Percentage	Mean	Std. Deviation
Individual Therapy	1708	304	17.80%	.1780	.38261
Family Therapy	160	67	41.87%	.4187	.49490