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Costs of Treating Depression with Individual Versus Family Therapy

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ABSTRACT

Cost of Treating Depression with Individual vs. Family Therapy

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Marital discord contributes to the development and continuation of depression and to the recurrence of depressive episodes for those in troubled relationships. Early research suggests that family therapy may reduce the severity and frequency of depressive episodes through modification of family interactional patterns. This would result in a reduction in the cost of treating depression.

This study summarizes the literature linking family dynamics with depression. Then, using a sample taken from a large health maintenance organization, data was statistically analyzed to measure the effectiveness of both individual and family therapy as delivered by different types of mental health professionals. Results indicated that family therapy was both effective and cost-effective in the treatment of depression.

Keywords: Depression, Family Therapy, Cost
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Cost of Treating Depression with Family versus Individual Therapy

Introduction

Many mental health therapists continue to treat depressed persons individually. However, relationship issues are known to either exacerbate or ameliorate depressive symptoms. For this reason, researchers and family-oriented practitioners advise inclusion of partners and family members in therapy. An important question to answer in this regard is whether it is truly cost-effective to treat depressed individuals within a family context. This study examines the literature supporting the practice of family therapy for depressed individuals and the attendant cost of treatment. It measures the effectiveness of individual and family therapy as delivered by different types of mental health professionals according to 1) license type, 2) differences in recidivism rates by age, gender, type of therapy, and type of mental health professional, and 3) differences in cost effectiveness by therapy modality and type of professional.

Defining Depression

The definition of depression, according to the Diagnostic and Statistical Manual, Fourth Edition, Text Revision (DSM-IV-TR) (American Psychiatric Association, 2000) is a feeling of sadness or dejection characterized by loss of interest or pleasure in all or nearly all activities for a period of at least two weeks. Persons suffering from depression experience symptoms such as significant changes in appetite, sleep disturbances, changes in psychomotor activity, loss of energy, difficulty in concentration and decision making, pervasive feelings of guilt or worthlessness, and recurring thoughts of death or suicide. A
diagnosis of major depressive disorder necessarily excludes depressed mood due to medical conditions, substance use, or bereavement.

*Incidence and Prevalence of Depression*

Depression is seen among all classes, races, and ethnic groups (Beach, Sandeen & O’Leary, 1990) with an estimated 9% to 26% of women and 5% to 12% of men experiencing a major depressive disorder at least once in their lives. Worldwide, 100 million people suffer with depression on any given day (Beach & Jones, 2002). Rates are similar across nations and cultures (Chiu, 2004; Pakriev, Vasar, Aluoja, Saarma, & Shlik, 1998). Depression is listed as one of the ten leading causes of death throughout the world (Lopez, Mathers, Ezzati, Jamison, & Murray, 2006). Moreover, thirty percent of those who suffer from depression experience a recurrence within three months and 50% within 2 years.

Children began to be formally diagnosed with depression around 1980 (Sheffield, 1998). During that decade, approximately 1% of children ages 3-9 and 8-9% of those ages 10-13 were diagnosed with depression. It was found that after puberty, the incidence of depression doubled to 16% for females. Depressive episodes among children may last up to 11 months and dysthymia up to four years.

*Cost of Treating Depression*

The cost of treating depression is similar to the cost of other degenerative diseases, and its magnitude is similar to that of cancer, AIDS, and coronary heart disease (Rosenbaum & Hylan, 2002). Due to relapse rates of 50 - 70% (Zajecka, 2000), the global cost of depression in terms of functional impairments such as lost productivity and
absenteeism, as well as greater health care costs, is predicted to become second only to ischemic heart disease by the year 2020 (Scott & Dickey, 2003).
Review of the Literature

Factors Common to Depression

Gender Differences in Presentation

Women are twice as likely to be diagnosed with depression as men (Kilmartin, 2005). Women report higher rates of anxiety, somatization, expressed anger, and sleep disturbances while men have been found to exhibit more externalizing behaviors during depressive episodes (Price & Lavercombe, 2000). Episodes of depression for women are often longer, and females are more likely to have a recurrent episode, especially in the presence of relationship difficulties.

Pollack (1998) observed that men may be equally as depressed as women, but with different symptoms. Half as many men as women seek psychotherapy, yet men complete suicide at least three times more often (Moller-Leimkuhler, 2002). Men, however, do not seek professional help as often in overcoming depressive mental states. Thus, men are less likely to seek professional help and less likely to be diagnosed with depression.

Relationship Factors

Research (Papp, 2003) suggests that relationship problems have a greater impact on women than on men and thus predispose women to depression. A common complaint among depressed wives is that their partners do not listen to them. Intimate relationships lower depression scores for female survivors of sexual abuse (Feinauer, Callahan, & Hilton, 1996), while social isolation makes women vulnerable to depression. For women, close, confiding relationships appear to serve as a protective factor against depression.
(Miles, 1988). Even major life stressors are less likely to result in depression when women have close confidants (Brown, Brolchain, & Harris, 1975).

Relationship disruptions and inability to commit may also be manifestations of a depressive state in men. A study of depressed fathers revealed that men’s social behavior often changes when they suffer from depression, manifesting behavioral changes such as greater irritability, negativity, difficulty in decision-making, or withdrawal from social interactions (Spector, 2006). Spector (2006) cited marital difficulties as a precipitating factor for depressed husbands, pointing out that divorce often deepens men’s depression, especially when their connection to children is disturbed. Thus, it appears that both men and women may experience depression within the context of a troubled relationship (Elliott, 2001).

Studies of gay and lesbian populations, while limited, also point to the importance of adequate social supports as a moderating factor in the incidence and severity of depression (Hays, Turner & Coates, 1992; Zea, Reisen, & Poppen, 1999).

Marriage and Depression

Married women suffer depression at a higher rate than single women (Anderson & Holder, 1989) and those who perform traditional gender roles in the home are more likely to be depressed. This is especially true for women with young children at home. Anderson and Holder pointed to familial and social issues as definite influences in women’s depression, citing the differences in depression rates between married and single women, employed and nonemployed, childbearing and childless. A positive relationship exists between gender role conflict and depression (Newman, 1998; Powers, 2000; Robinson, 2006). In Newman’s (1998) study, while men experienced significantly
more gender role conflict than women, both men and women experienced similar amounts of role conflict in the areas of work and family. Newman asserted that limiting self-expression and denying internal needs due to personal and social expectations creates psychological distress and depression in both genders. Marriage and parenthood also have different assigned meanings for men and women due to social expectations. Women are traditionally expected to assume the role of nurturer/caretaker of children, the elderly, and of one another. This can result in role overload, with women subordinating their own needs in order to care for others and suffering emotionally as a result of their own unmet needs. Likewise, men’s preoccupation with or feelings of powerlessness in their provider role may obscure them to their disconnection from their families and their unmet emotional needs.

*Power Differentials*

Kaslow and Carter (1991) identified power imbalance as a central theme in the lives of depressed women. Depressed wives were found to have less access to family income and to feel dissatisfied with the distribution of household tasks and child care in their homes; these women were “financially and psychologically weaker” (pg 413) than their partners or wives who did not suffer depression” (Byrne & Carr, 2000; Byrne, Carr, & Clark, 2004). In an earlier study, Whisman and Jacobson (1989) found that depressed women in relationships experienced less equality in decision making. Thus, two keys to alleviating depression for women become personal empowerment and interpersonal connection.

It is possible that women perceive their roles as wives to require self-denial and passivity which then leads to feelings of anger and lack of control over their own lives.
Issues of control, power, and self-denial must be addressed within the marital and family context.

*Depression and Family Relationships*

*Marital Relationships*

As many as 50% of distressed couples have at least one partner with depressive symptoms (Beach & Gupta, 2003). Beach, Sandeen, and O’Leary (1990) reported a direct relationship among the common areas of marital discord and the symptoms of depression. They stated that depressed persons in relationships often have a negative impact on their partners, which further exacerbates marital discord and contributes to a downward spiral whose end result may be suicide or divorce. Beach and Gupta (2003), stated, “Depressed persons may cause their partners to feel burdened, ambivalent, and silently resentful” (pg 91). Depression impacts family communication, problem solving, and role function, placing a significant strain on all family members (Keitner, et al, 2005). Couple interactions exhibit greater levels of negativity, hostility, tension, and control attempts when one partner is depressed (Hinchcliffe, et al, 1975).

Family dysfunction has a significant effect on the prognosis for depressed patients, decreasing recovery rates and level of functioning and creating a significant risk of relapse (Keitner, et al, 2005). Byng-Hall and Whiffen (1982) wrote, “For family therapists, the social context in which the mood is experienced provides the key to both evaluation and treatment of affective disorder” (pg. 318). Treating both partners in couple therapy appears to have a positive impact on the marital relationship for both depressed and non-depressed spouses (Beach & O’Leary, 1992; Jacobson, et al, 1991).
Papp (2000) implicated marital conflict as the most stressful life event leading to depression and the best predictor of relapse. Women with marital problems may not improve significantly on medication alone (Anderson & Holder, 1989) and even with decreased depressive symptomology may continue to experience marital discord.

O’Leary, et al (1990) found that when marital problems preceded depression, marital therapy resulted in positive outcomes; individual therapy did not. Marital therapy was recommended over individual therapy when marital problems are more of a concern than depression and precede the depressive symptoms or when cognitive errors are of lesser concern than marital issues.

Weissman’s (1987) study of depression in marriage indicated the likelihood of depression in a distressed marriage to be 25 times more than in a nondistressed marriage. Marital therapy was found to be more effective than medication in improving family relationships and increasing the family’s ability to perform their roles and responsibilities (Friedman, 1975).

Children and Depression

Children of depressed parents, either mothers or fathers, are at increased risk for earlier onset and more severe depression (Lieb, Isensee, Hofler, Pfister, & Wittchen, 2002), have more acting out behaviors and school problems, and are more accident prone than children of nondepressed parents (Anderson et al, 1989). Manassis (2006) reported the risk of major depression to be three times higher for children of depressed parents. Both girls and boys appear to share an emotional and psychological vulnerability to mental disorders when their mothers suffer from depression (Sheeber, Davis, & Hops, 2002). These children also have higher rates of substance use and anxiety disorders.
Gladstone and Beardslee (2002) reviewed literature relative to children of affectively ill parents and found them to have higher rates of psychiatric disorders as well as interpersonal and attachment difficulties.

Longitudinally, the disadvantages of growing up with an affectively ill parent persist even after parental depression has remitted (Radke-Yarrow & Klimes-Dougan, 2002). Children of divorced parents are likely to experience depression as adults as well as difficulty in relationship commitment (Wauterickx, Gouwy, & Bracke, 2006). This may create a cycle of depression, marital discord and family dysfunction.

In a review of how depressed parents affect children of different ages, Lieb, et al (2002) found that 1) infants sleep more, are fussier and less active; 2) toddlers are insecurely attached to depressed mothers and more aggressive toward strangers; and 3) adolescents have lower self-concepts and are more self-deprecating. During the first months of life, depressed parents talk less with their infants and respond more negatively to bids for attention and care (Lundy, et al, 1996). Depressed women reportedly show less patience, more criticism, and more angry responses to their children’s behaviors as well. This may result in tenuous attachment bonds between parents and children; these bonding difficulties could lay the foundation for depression or behavioral difficulties in later life (Parker, 1993).

Younger children may respond to their parents’ sadness by increasing their own caretaking behaviors (Hans, 2006), thus becoming parentified at an early age and unable to complete their own developmental milestones. Depressed parents may have difficulty with child discipline (Cummings & Davies, 1999) leading to greater child deviance. Among children and adolescents of depressed parents, symptoms such as low self-
esteem, hopelessness, pessimism and social skills deficits are common (Abramson et al, 1998; Manassis, 2006). Depressed parents have been found to vacillate between passivity and coerciveness in their responses to children’s noncompliance. This type of inconsistency may contribute to children’s behavior problems (Hans, 2006). Depressed parents likely model maladaptive coping strategies for their children (Cicchetti & Toth, 1998) through criticism and rejection in parent-child relationships (Manassis, 2006). As caregivers, these parents may find it difficult to show caring and consistency in their interactions with their children (Cicchetti & Toth, 1998). Adolescents are particularly affected at an age when they test their parents’ limits and overstep boundaries when opportunity presents itself (Anderson, et al, 1989). These difficult family dynamics, as well the illness’s economic toll, paint a bleak picture in terms of the socioemotional costs of depression to the family.

**Depression and Family Therapy**

Weissman (2001) noted that the efficacy of psychotherapy was related to the psychosocial and interpersonal aspects of depression which could be addressed in addition to use of medication. Especially in cases of child and adolescent depression, it is difficult to change the context in which depression occurs. This is one area where family therapy has proven effective (Gallagher, 2005; Gladstone & Beardslee, 2002).

Keitner, et al (2005) identified the variables of poor family functioning and early age of onset as risk factors for nonrecovery from depression; both of these factors can be addressed through clinical interventions with families. Depressed patients who attempted suicide had negative perceptions of their families compared to depressed patients who did not attempt suicide and who had more positive perceptions of their family dynamics.
(Keitner, Miller & Ryan, 2005). Perceived family support may be a key factor in a patient’s decision to end or prolong his or her life struggles.

Keitner, et al’s (2005) examination of female depressed patients found that depressed women have greater difficulty in managing family roles, and without family interventions are more likely to have prolonged episodes of depression. They concluded that the presence of family members in therapy alleviates stress for caretakers and provides therapists with a broader picture of the etiology of the disease so that contributing factors can be identified and addressed. While gaining the family’s perspective on the depressed person’s illness, the therapist can assess the family’s strengths and weaknesses and possible areas of dysfunction. Family members can then be educated and trained to respond to the patient’s symptoms. How they respond to the depressed member can contribute to remission or prolongation of depressive symptoms.

Systems theory suggests that family members become stuck in feedback loops where they continue to repeat unhealthy interactional patterns. Those patterns must be modified by some type of intervention in order to effect change, and family therapists are best trained to identify and target these patterns. Gillham et al (2000) found evidence that family interventions improve outcomes for children and adolescents through giving children an increased knowledge of their parents’ depression, improving communication, and increasing family closeness. Where children’s deviant or defiant behaviors have contributed to parental depression, parents’ depressive symptomology is also relieved.

Cost of Depression

In addition to the socioemotional costs of depression, there are economic losses, both medical and non-medical. Depression decreases earning capacity due to absenteeism
and causes more short-term disability than illnesses such as diabetes, back pain, and high blood pressure (Gabbard, 1998). Patients suffering from depression experience more life stressors and more frequent changes in the areas of work, housing, family life, and physical health (Keitner et al, 2005) than their nondepressed peers. Depression has also been found to reduce life expectancy and quality of life for both women and men (Kominski et al, 2002).

Berndt, et al (2000) found that early-onset depressive disorder adversely affected educational attainment among women, resulting in 12-18% lower future earnings than other young women of the same age. Family income also decreased by 17% among men and women who suffered from depressive symptoms, compared with a 7% rate in nondepressed participants (Whooley, et al, 2002). In addition, persons with major depression had a 4.78 times greater risk of disability compared to asymptomatic individuals (Broadhead, Blazer, George, & Tse, 1990). Those with minor depression had a 1.55 times greater risk of disability.

Direct costs of depression or expenses incurred in the provision of service or treatment, include time required to deliver or participate in services, materials consumed, equipment, cost of space and overhead (Rosenbaum, et al, 2002), money spent on medical and outpatient visits, psychiatric and specialty care, pharmacotherapy, hospitalizations and inpatient care, and psychotherapy and counseling. Twenty-eight percent or $12.4 billion of the $43.7 billion spent for depression care in 1993 was attributed to direct costs with another $7.5 billion or 14% attributable to mortality costs, and $23.8 billion or 55% derived from morbidity costs (Greenberg, Stiglin, Finkelstein,
& Berndt, 1993). Direct costs increased to 31% or $26.1 billion in the year 2000 (Chisholm et al. 2003).

_Cost Effectiveness of Family Therapy for Depression_

A cost effectiveness study examines the costs of treatment in reference to certain clinical outcomes. This type of analysis allows for comparison among treatments (Fals-Stewart, Yates & Klostermann, 2005). Effectiveness refers to clinical outcomes of therapy and changes in clients and/or the family system and is commonly defined in terms of health improvements such as reduced symptoms, improved quality of life, extended life expectancy, and so on. In addition to self-reported measures of decreased symptomology, the increased ability of depressed persons to function and contribute to the larger society (Fals-Stewart, et al, 2005) is an important outcome and benefit to families, employers, and communities in general.

Psychotherapy has been shown to reduce the number and frequency of depressive episodes from mild to severe depression and to prevent sub-threshold depression from developing into major depressive episodes (Smit et al, 2006), thus decreasing costs and improving clinical outcomes. Studies on the effectiveness of family therapy for depression (Cottrell, 2003) suggest additional longitudinal effects of family treatment through changes in relational patterns, lowering the overall costs of depression to families and communities.

Sturm and Wells (2006) found that the addition of mental health services to physician-provided services increased the monetary costs of treating depression, but improved the outcomes; diverting patients away from use of mental health practitioners, however, decreased medical costs but worsened outcomes.
In America, health maintenance organizations (HMOs) regulate how much is spent on which services, and practitioners, including mental health workers, are held responsible for accounting of services rendered. Therefore, studies which examine cost-effectiveness can help to ensure that data are available for making more informed decisions about costs, benefits, and treatment outcomes.

An offset effect occurs when patients reduce their medical utilization after receiving therapy or other types of behavioral health interventions (Law, Crane & Berge, 2003). Spouses and children of depressed partners often have difficulty coping with depressive symptoms, resulting in more frequent doctor visits for family members (Anderson, et al, 1989). Law and Crane (2000) demonstrated a significant 21.5% offset effect after patients participated in marriage and family therapy. Participants other than the identified patient also reduced their health care visits by a non-significant 30.5% after therapy. Individual psychotherapy resulted in a lesser offset effect of 10%. A further examination (Law, Crane, & Berge, 2003) found those treated in marriage and family therapy demonstrated a significant 53% decrease in health care utilization, indicating a post-therapy reduction in medical costs as another benefit of marriage and family therapy.

Hunsley (2003) wrote, “There is clear and compelling evidence that there are psychological interventions that are effective in treating a wide range of child and adult health problems, including depression” (pg 61), and noted that the utilization of psychotherapeutic interventions may decrease the need for medical services. Overall, researchers have found a four times greater likelihood of appropriate treatment for anxiety and depression by mental health practitioners than by primary care physicians.
In a recent study of data from the CIGNA health care system, Crane and Payne, (in press) compared costs of therapy by type of mental health license. Analysis revealed that patients treated by marriage and family therapists had the highest success (86.53%) and lowest recidivism rates (13.47%) when compared to other mental health professions. It seems appropriate that the work of marriage and family therapists, which involves a couple or family unit, should prove cost-effective because several individuals are served at the same time and because the focus is on changing the context which maintains maladaptive coping strategies (Fals-Stewart, et al, 2005). When modification of the family system proves successful, 1) the likelihood of recurrence or continuation of dysfunction would logically be reduced, resulting in lower overall treatment costs and savings due to decreased recurrences of depressive episodes, and 2) indirect costs would also be reduced as a result of increased work productivity and fewer sick and disability days. Additionally, in marital and family therapy, 3) benefits are accrued for each family member, reducing relapse rates for the identified patient and 4) decreasing stress and health care utilization for other family members as well.

Summary and Research Questions

Studies on the effectiveness of family versus individual therapy for the treatment of depression suggest that both modalities are equally effective in reducing depressive symptomology (Bennun, 1984, 1985; Gilliam & Cottone, 2005). Family therapy, however, is also effective in reducing marital distress (Gilliam & Cottone, 2005; due to the attention given to the context of the problem. Family therapy may also have greater
long-term effects for patients and families than individual therapy. This study contributes to the existing literature by examining the costs of family therapy in managed health care compared to the cost of individual therapy, which is the dominant form of psychotherapy.

This study was designed to measure the cost effectiveness of family therapy compared to other modalities and mental health disciplines. Specifically, the following questions were asked: 1) What is the difference in the cost of therapy using individual, family and mixed (individual plus family) methods of delivery? 2) What is the difference in the cost of family therapy by type of mental health practitioner?

Due to high relapse rates of depressive episodes, it is important to know whether individual or family treatments have lower recidivism rates. Recidivism cost evaluations provide researchers, clinicians, and health care administrators a clearer picture of the monetary costs of delivering certain types of treatment. A preliminary analysis of CIGNA data showed that relapse rates for all diagnoses were higher for those who received marital and family therapy (Prohofsky, 2005). However, Crane and Payne (in press) demonstrated that family therapy is the least costly modality in treating clients with various mental health diagnoses. Also of interest is whether recidivism rates differ by type of mental health professional, as there are differences in the training and orientation of those who work from an individual versus a systemic framework. Therefore, the third research question is: 3) What is the difference in recidivism rates according to mode of therapy and type of mental health practitioner?

Due to the differing developmental stages of children, youth, and adults, and the different presentations of depression, it is possible that the efficacy of psychotherapy may
differ for each group. Therefore, the fourth question is: 4) What is the difference in recidivism rates between genders and age groups?

Having determined the cost and recidivism rates of treating depression, cost effectiveness was then calculated to answer the following questions: 5) What is the cost-effectiveness of family therapy compared to individual and mixed therapies? and 6) What is the cost-effectiveness of therapy by mental health professional?
Methodology

Subjects

Using a retrospective, archival longitudinal study, subjects were drawn from a large United States health care insurer: CIGNA. Four years of data (2001-2004) and 970,000 entries (claims made by treatment providers) for the enrollees in this health care plan were included. Every state was represented. No attempt was made to censor subjects who may have ended therapy during the initial part of the study nor those who may have begun therapy just previous to its close. Individuals who received a primary DSM-IV-TR diagnosis of depression as the primary diagnosis were extracted — using any one of three diagnostic codes for unipolar depressive disorders, [(DSM-IV-TR codes: 296, 300.4, 311). The subjects represented all persons who received individual or family therapy in the CIGNA system for those years.

Numbers were: major depressive disorder (DSM IV 296; N = 96,639), dysthymia (DSM IV 300.4; N = 39,494), and depressive disorder not otherwise specified (DSM IV 311; N = 28,534). The combined total was 164,667.

The age range of the subjects was from 3 to 84. These were divided into 3 age groups: children aged 3-12, adolescents aged 13-18, and adults aged 19 and over.

Methodology

At the time of data extraction, CIGNA managed thirty seven health care plans and served over nine million subscribers in the United States. It served a heterogeneous population of varying demographic backgrounds. Data were available on diagnoses,
episodes of care, and types of licensed professionals in order to compare costs and effectiveness across professions.

CIGNA pays for mental health treatment by license held and degree type with master’s level practitioners being paid less than PhD or MD level providers. All types of mental health professionals provided both individual and family therapy. All therapists used current procedural terminology (CPT) codes that indicated whether their treatment method was either individual or family therapy.

**Definition of terms**

“Depression” – A diagnosis of major depressive disorder, dysthymia, or depressive disorder not otherwise specified, or any primary diagnosis of depressive symptoms.

“Individual therapy” – Therapy performed by a provider on the CIGNA health care provider list with just one individual, not in a group setting.

“Family therapy” – Therapy performed by any type of care provider on the CIGNA health care provider list with two or more family members at the same time, not in a group setting.

“Mixed therapy”—Therapy performed by a provider on the CIGNA health care provider list utilizing both individual and family therapy.

“Unique client cases” – Every entry in the data base representing one client, instead of multiple entries representing one client.

“Cost of treating depression” – The total billed charges for treating depression by each provider utilizing either individual or family therapy.
“Episode of Care (EoC)” – Length of treatment where sessions do not exceed 89 days between them. Any number of sessions can be part of a treatment episode.

“Recidivism” – Two or more episodes of care.

“Cost effectiveness” – Average cost of the first episode of care plus [the recidivism rate times the cost of EoC].

In the data, each transaction by CIGNA represented a claims line. Each claim was recorded as one of two current procedural terminology (CPT) codes: individual therapy (90806), family therapy (90847), or a combination of the two called mixed therapy. The data set included only outpatient care.

A variable for the number of Episodes of Care (EoC) was created to be consistent with the previous research (Crane & Payne, in press). An EoC is any period of time where the number of days between subsequent sessions does not exceed 89 days. When the period between sessions was 90 days or more, this was considered a new episode of care. Clients were assumed to have completed treatment if they did not come back for 90 days. Therefore, if they restarted therapy after 90 days, they were considered to have relapsed.

Sample

Data from the four years were combined using the unique client ID numbers assigned to each client, creating a longitudinal database. Each mental health claim was recorded as one entry, making it possible to aggregate cases. This allowed for an analysis of the recidivism rates and costs of therapy.

Six license types were extracted from the data base, representing the licensed mental health and medical practitioners common to each state. These included
counselors, marriage and family therapists, nurses, physicians, psychologists, and social workers. While their acronyms differ from state to state, these were the six core mental health disciplines extracted for use in this study (Crane et al, in press). This aggregation made it possible to analyze therapist delivery practices (therapists delivering either individual or family therapy) and charges for treatment according to license type.
Analysis and Results

The data span four years of treatment, making it a longitudinal archival study. It should be noted that while this study compared 6 different license types, two main types of practitioners were represented: talk therapists and medical professionals. Talk therapists included marriage and family therapists, professional counselors, psychologists, and social workers, who are trained to resolve intrapersonal and interpersonal conflicts. The medical professionals in this study included nurses and physicians licensed to prescribe psychotropic medications. Their training is largely focused on biological or physiological illnesses or imbalances. However, talk therapists must have an awareness of physiological or medical conditions which may contribute to mental illness and likewise medical professionals must be familiar with the interconnectedness of mental illness with physiology.

Research question 1. What is the difference in the overall cost of treating depression through individual versus family or mixed therapies?

In order to answer this question, an ordinary least squares regression model was employed, regressing the total cost for treatment per person on therapy mode. Client age, gender, and region were controlled. Preliminary analyses indicated that it was necessary to control for region, as the cost of therapy varied according to region of the United States in which therapists resided. Age and gender were examined as separate questions (See question 4) and thus were controlled for in other analyses. Cost was the variable of interest which became the independent variables. Two regressions were run: first with the raw cost data and then with log-transformed cost data. Preliminary analyses showed the data was positively skewed. To normalize the distribution of the cost data, the natural log
transformation of total dollars was calculated. The model was significant $F(5, 164,661) = 1,203.79, p< .001$ for all therapy modes with raw cost data. With the log-transformed data, the model was also significant for all modes, $F(5, 164,661) = 2,025.36, p < .001$.

Results are presented in Table 1.

[Insert Table 1 About here.]

*Research question 2.* What is the difference in the overall cost of treating depression by type of mental health professional? The same procedure was used as in question one, with cost as the independent variable and license type as the dependent variable. Total cost was regressed on license type, controlling for region of service, therapy modality, patient age, and patient gender. Again, regressions were run once with raw cost data and once with log-transformed cost data. One regression was run for each category of the independent variable in order to compare license types. For raw data, the model was significant, $F(9, 164,657) = 600.54, p < .001$. Nurses were not significantly different than MFTs or MSWs. The rest of the differences among professions were significant. For log-transformed cost data, the model was significant, $F(9, 164,657) = 1,046.69, p < .001$. With the log-transformed data, nurses were not significantly different than counselors. The rest of the differences among professions were significant. Results are presented in Table 2.

[Insert Table 2 About here.]
While comparisons were made among professionals licensed to treat depression, it should be noted that two such categories exist: 1) those who are largely medical professionals such as physicians and nurses, licensed to prescribe medication and 2) those who are licensed as mental health practitioners or talk therapists. In this study, counselors were the least expensive of the talk therapists and psychologists the most expensive. Physicians were the least costly of the biomedical providers.

Research question 3. What is the difference in recidivism rates according to mode of therapy and type of mental health practitioner? The number of episodes of care was divided into two categories, one or 2 or more, to determine the number of clients who experienced recurring episodes of depression. A logistic regression model was used to compare differences in likelihoods of recidivism between therapy modes and providers. Regions were compared and found not to have statistically significant differences. Preliminary analysis indicated that patient age and gender and region of the country where services were provided were significant predictors of recidivism. Therefore, those variables were used as controls in analysis. Recidivism was coded as a binary variable according to whether a client had only 1 or more than 1 episode of care. Binary logistic regression output indicates how much more or less likely a given group (e.g. therapy mode or profession) is to have a patient return for a second episode of care compared to the comparison group. Again, one regression was run per therapy type and per license type and per therapy mode to determine statistical differences among the groups. The model was significant for license type ($\chi^2 = 667.93, p < .001$).

Overall, marriage and family therapists were the professionals least likely to have patients return for a second episode of care with the largest comparative differences,
although their rates were not significantly different than MDs and nurses. Results are presented in Table 3, comparing the other professions to MFTs.

[Insert Table 3 About here.]

The model for therapy mode was also significant ($\chi^2 = 744.48, p < .001$). Individual, family, and mixed modes were all significantly different than the others on recidivism. Individual therapy patients were the least likely to return for a second EoC. Family therapy patients were 11.7% more likely to return and mixed therapy patients were 25.6% more likely to return compared to individual patients. Results are presented in Table 4.

[Insert Table 4 About here.]

Research Question 4. How do recidivism rates differ by patient’s age and gender? Using age and gender as categorical variables, a logistic regression model was used to compare the differences between three age categories: 0-12, 13-18 and 19 and older. Children from birth to twelve are included in the first category. Patients were broken into age categories because logistic regression compares groups. The groups were created to represent children, adolescents, and adults for comparison purposes. Region and gender were controlled for in this analysis.

It was not possible to calculate recidivism by individual years due to the size of the data set. Consequently, the model examining recidivism by age groups, which
controlled for client gender, was significant ($\chi^2 = 155.56, p < .001$). Children were not significantly different than adults. Children were 23.2% more likely to return for a second EoC than adolescents. Adults were 5.3% more likely to return for a second EoC than adolescents. Results are presented in Table 5.

[Insert Table 5 About here.]

Male and female differences were also compared using logistic regression. Age and region were controlled for. Results indicated that women were 17.5% more likely to return for treatment than men. A one-way ANOVA (F=101.97, p<.001) was used to calculate recidivism rates for each gender. Results are presented in Table 6.

[Insert Table 6 About here.]

Research Question 5. What is the difference in estimated cost effectiveness according to type of mental health professional? Cost effectiveness was calculated by taking the total average cost of the first episode of care and adding it to the recidivism rate times that cost. Results shown in Table 7 indicate that counselors’ services were most cost effective and psychologists’ least cost effective of talk therapists and physicians were the most cost effective of biomedical providers.

[Insert Table 7 About here.]
Research Question 6. What is the difference in estimated cost effectiveness according to type of therapy? Answers were calculated using the same cost-effectiveness formula. Results shown in Table 8 show family therapy was the most cost-effective mode of delivery.

[Insert Table 8 About here.]
Discussion

Question 1 examined the differences in overall costs of treating depression by therapy type. Differences between individual, family, and mixed therapy type were all statistically significant in terms of cost, family therapy being the least expensive, followed by individual and then mixed modes of therapy. Since total cost was determined by number of sessions attended, this means that family therapy required fewer sessions to address presenting concerns. This may have been due to changes in the entire family system. Individual therapy proves effective because patients learn how to manage their depressive thoughts and moods so that they can function more effectively in their roles and responsibilities. This would likely increase their sense of self-efficacy and personal empowerment, resulting in decreased symptomology so long as they practice what they have learned.

It is unknown why mixed therapy cost more. Perhaps more time is required to work with both individuals and families and then to integrate the learning. It is not known whether patients who receive both individual and family therapy were more severely depressed and required more treatment sessions.

Question 2 looked at the differences in overall cost of treating depression by profession or license type. Counselors were least costly, followed by physicians. Physicians, as medical doctors, are most likely to combine pharmacology with counseling and thus may achieve patient stability at a faster rate.

Marriage and family therapists were the second most costly of mental health practitioners, implying that more sessions may be required to complete therapy. Thus, while family therapy was the least costly mode of delivery, it appears that marriage and
family therapists, as a profession, utilized more sessions to complete therapy. However, provided family therapy results in greater long-term benefits and results in changes to the family system, this higher cost would be justified.

Question 3 looked at recidivism rates according to therapy mode and type of professional. Recidivism was measured by whether patients returned for a second or subsequent episode of care during the 4 year study. Mixed therapy patients were more likely to return for a subsequent episode of care than either family or individual therapy patients. Mixed forms of treatment may well be a “proxy” for more difficult or complex cases. Looking at recidivism by type of professional, marriage and family therapists were least likely to have patients return for a second episode of care. This may point toward the more durable effects of treating depression in the context of the family social system. However, it is also possible that those who complete treatment in family therapy are less willing to return in the event of a relapse.

Question 4 compared women and men’s recidivism rates and the three age groups of children, adolescents, and adults. Women in this study were more likely to relapse and more likely to return for a second episode of treatment. This finding supports the existing literature which reports the greater utilization of health resources by women.

Adults and children had similar rates of recidivism (16.15% and 16.9%). Adults as caretakers and children as dependents may have the most difficulty modifying their family systems, while adolescents who pass into adulthood leave the family system. Since most patients attended individual therapy, this may point to the need for changes in family systems via family therapy. Also of note is the fact that adolescence spans a shorter number of years than childhood or adulthood as we have defined it here.
Moreover, some children may have crossed over into adolescence and some adolescents into adulthood during the course of the study. Our data does not indicate how many subjects would fit these categories.

Question 5 examined cost-effectiveness by type of practitioner. Marriage and family therapists fell within the median range on cost effectiveness. Thus, while not the most cost-effective of clinicians, marriage and family therapists are comparable to other mental health professionals.

Question 6 showed family therapy to be the most cost effective treatment mode compared to individual and mixed modes of therapy. These results support the assertion that family therapy is cost effective even when delivered by professionals with different credentials from marriage and family therapists.

Family therapy, in this study, was both the least costly and the most cost-effective mode of treatment for depression. Marriage and family therapists, as professionals, were as effective as other practitioners in providing services to individuals and families with depressed members. They were the least likely of professionals to have patients return for a second or subsequent episode of care.
Limitations and Directions for Future Research

Limitations

A benefit of this dataset was access to the entire population of CIGNA subscribers. This eliminated the need for inferences upon which statistical models are usually built. However, the retrospective design also made it impossible to use prospective random assignment. Further, because subjects shared common diagnoses, there was no way to create a control group.

All analyses and conclusions were drawn from information provided by CIGNA. It was not possible to examine other aspects of client histories which influence depression and recidivism: abuse history, illness or disability, and so forth.

It was found that family therapy was the least costly mode of therapy, requiring fewer total sessions. However, Hamilton, Moore, Crane and Payne (in press) found higher dropout rates for those who attended family therapy, suggesting that family therapy patients may be more likely to terminate therapy before resolving their issues. Early termination would result in lower cost due to fewer sessions but would likely increase other economic costs such as lowered productivity and increased absenteeism as well as increase usage of other medical expenses.

Mixed therapy was found to be the most costly mode of therapy. Since cases were not separated according to severity, it is unknown whether these clients were more severely depressed. Likewise, it is unknown which clients received antidepressants in conjunction with therapy.

Of primary interest in this study was the mode of therapy given. Marriage and family therapists appeared to be as effective as other professionals who provided service to families. It is known that depression rates are highest for married women with children. However, in this dataset, no group demographics were made available. It would have been informative to
compare married and single men and women, with and without children with such a large sample size.

Knowing that depression has genetic and familial components, it would also have been revealing to have had the ability to link nuclear family members who suffered depression or had some type of mental disorder and to track their degree of recovery according to type of therapy received.

*Directions for Future Research*

All depressed persons with diagnoses of major depressive disorder, dysthymia, and depressive disorder not otherwise specified were included in this dataset. An analysis of cost, recidivism, and cost-effectiveness by severity would provide more information as would an examination of the interaction between age categories, gender, and diagnosis. Much more research is needed to uncover answers to questions about the conditions under which family therapy is most effective for depression. Studies which examine particular relational conflicts of different families might provide answers about the efficacy of family therapy for certain types of contextual issues.

*Conclusion*

Marriage and family therapy, as a profession, is relatively young, and therefore has not been as well known as psychology and social work. Its effectiveness as a mental health profession has been unknown. This study demonstrates that family therapy is cost-effective for depressed individuals and that marriage and family therapists are professionals who can effectively treat depression at a cost comparable to that of other mental health therapists. This is important information for health maintenance organizations to have as they make decisions about mental health providers.
Noting that most patients spend the greater part of their lives as adults who partner, procreate and parent, those who suffer from depression would benefit by having family therapy with the option of selecting a trained marriage and family therapist as a provider. Family therapy could improve the functioning of both patients and their families in their roles and responsibilities. It is a cost-effective option offering long-term benefits to both patients and their families.


Table 1

*Total Dollars, Episode of Care 1*

<table>
<thead>
<tr>
<th>Therapy Type</th>
<th>N</th>
<th>Mean (raw $)</th>
<th>Std. dev. (raw $)</th>
<th>Mean (log $)</th>
<th>Std. dev. (log $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Only</td>
<td>16,449</td>
<td>248.65</td>
<td>313.04</td>
<td>175.91</td>
<td>64.72</td>
</tr>
<tr>
<td>Individual Only</td>
<td>131,709</td>
<td>391.31</td>
<td>566.72</td>
<td>237.46</td>
<td>77.48</td>
</tr>
<tr>
<td>Mixed Mode</td>
<td>16,509</td>
<td>631.69</td>
<td>686.48</td>
<td>459.43</td>
<td>184.93</td>
</tr>
<tr>
<td>Total</td>
<td>164,667</td>
<td>401.16</td>
<td>567.15</td>
<td>247.15</td>
<td>81.45</td>
</tr>
</tbody>
</table>
Table 2

*Total Cost by License Type in EoC 1*

<table>
<thead>
<tr>
<th>Profession Type</th>
<th>N</th>
<th>Cost (raw $)</th>
<th>Std. Dev. (raw $)</th>
<th>Cost (log $)</th>
<th>Std. Dev. (log $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDs</td>
<td>2,612</td>
<td>343.42</td>
<td>630.68</td>
<td>188.67</td>
<td>62.18</td>
</tr>
<tr>
<td>Counselors</td>
<td>32,677</td>
<td>322.12</td>
<td>467.91</td>
<td>206.44</td>
<td>70.81</td>
</tr>
<tr>
<td>MSWs</td>
<td>63,007</td>
<td>380.25</td>
<td>533.65</td>
<td>235.10</td>
<td>77.48</td>
</tr>
<tr>
<td>Nurses</td>
<td>2,187</td>
<td>377.18</td>
<td>535.56</td>
<td>223.63</td>
<td>74.44</td>
</tr>
<tr>
<td>MFTs</td>
<td>11,262</td>
<td>381.42</td>
<td>521.96</td>
<td>235.10</td>
<td>78.25</td>
</tr>
<tr>
<td>Psychologists</td>
<td>52,922</td>
<td>482.90</td>
<td>652.56</td>
<td>301.87</td>
<td>100.48</td>
</tr>
<tr>
<td>Industry Average</td>
<td>164,667</td>
<td>401.16</td>
<td>567.15</td>
<td>247.15</td>
<td>81.45</td>
</tr>
</tbody>
</table>
Table 3

Recidivism by Profession

<table>
<thead>
<tr>
<th>Profession</th>
<th>N</th>
<th>Likelihood of recidivism compared to MFTs</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFTs</td>
<td>131,709</td>
<td>-</td>
</tr>
<tr>
<td>Counselors</td>
<td>32,677</td>
<td>16.6% more likely *</td>
</tr>
<tr>
<td>MDs</td>
<td>2,612</td>
<td>2.9% more likely</td>
</tr>
<tr>
<td>Nurses</td>
<td>2,187</td>
<td>6.6% more likely</td>
</tr>
<tr>
<td>MSWs</td>
<td>63,007</td>
<td>18.1% more likely *</td>
</tr>
<tr>
<td>Psychologists</td>
<td>52,922</td>
<td>17.8% more likely *</td>
</tr>
</tbody>
</table>

* p < .001
Table 4

*Recidivism by Therapy Modality*

<table>
<thead>
<tr>
<th>Therapy Mode</th>
<th>N</th>
<th>Likelihood of recidivism compared to individual therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>131,709</td>
<td>-</td>
</tr>
<tr>
<td>Family</td>
<td>16,449</td>
<td>11.7% more likely *</td>
</tr>
<tr>
<td>Mixed</td>
<td>16,509</td>
<td>25.6% more likely *</td>
</tr>
</tbody>
</table>

* *p < .001*
Table 5

*Recidivism by Age Group*

<table>
<thead>
<tr>
<th>Age Group</th>
<th>N</th>
<th>Likelihood of recidivism compared to adolescents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adolescents</td>
<td>18,397</td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td>6,424</td>
<td>23.2% more likely to return than adolescents*</td>
</tr>
<tr>
<td>Adults</td>
<td>139,846</td>
<td>15.3% more likely to return than adolescents *</td>
</tr>
</tbody>
</table>

*p < .001*
Table 6

*Recidivism Rates by Gender*

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Recidivism Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>54,253</td>
<td>14.89%*</td>
</tr>
<tr>
<td>Female</td>
<td>110,414</td>
<td>16.84%*</td>
</tr>
</tbody>
</table>

* $p < .001$
Table 7

Estimated Cost-Effectiveness by License Type

<table>
<thead>
<tr>
<th>License type</th>
<th>Average cost EoC1 ($)</th>
<th>Estimated cost-effectiveness ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDs</td>
<td>343.42</td>
<td>397.06</td>
</tr>
<tr>
<td>Counselors</td>
<td>322.12</td>
<td>373.24</td>
</tr>
<tr>
<td>MSWs</td>
<td>380.25</td>
<td>443.49</td>
</tr>
<tr>
<td>MFTs</td>
<td>381.42</td>
<td>435.28</td>
</tr>
<tr>
<td>Nurses</td>
<td>377.18</td>
<td>435.83</td>
</tr>
<tr>
<td>Psychologists</td>
<td>482.90</td>
<td>562.00</td>
</tr>
<tr>
<td>Industry Average</td>
<td>401.16</td>
<td>466.15</td>
</tr>
</tbody>
</table>
Table 8

*Cost-effectiveness of EoC1 by Type of Therapy*

<table>
<thead>
<tr>
<th>Therapy type</th>
<th>Avg Cost EoC1 ($)</th>
<th>Cost-effectiveness ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>391.31</td>
<td>453.57</td>
</tr>
<tr>
<td>Family</td>
<td>248.65</td>
<td>289.48</td>
</tr>
<tr>
<td>Mixed</td>
<td>631.69</td>
<td>747.04</td>
</tr>
</tbody>
</table>