COSTS OF TREATING DEPRESSION WITH INDIVIDUAL VERSUS FAMILY THERAPY

Crane, D. R
Brigham Young University

Christenson, J. D.
Mount Mercy University

Dobbs, S. M., Schaalje, G. B., Moore, A. M., Chiang, F. F., Ballard, J.
Brigham Young University

Marshall, E. S.
Georgia Southern University

Depression is one of the most common concerns that bring clients to treatment. Although marriage and family therapy has been shown to be an effective treatment, little research exists regarding the cost-effectiveness of related services. In this study, we examined claims data for 164,667 individuals diagnosed with depression to determine (a) differences in the cost of treating depression according to type of therapy and license type, (b) differences in recidivism rates by age, gender, type of therapy, and type of mental health professional, and (c) differences in cost-effectiveness by therapy modality and type of professional. The results showed that services provided by marriage and family therapists resulted in the lowest recidivism rate, and family therapy services were the least expensive.

Depression is one of the ten leading causes of death worldwide (Lopez, Mathers, Ezzati, Jamison & Murray, 2006) and affects 121 million people worldwide (World Health Organization [WHO], 2011). An estimated 9% of men and 17% of women experience an episode of major depressive disorder at least once in their lives (Hasin, Goodwin, Stinson & Grant, 2005), and the relapse rates for depression are between 50% and 70% (Zajecka, 2000). The global cost of depression includes functional impairments, such as lost productivity and absenteeism, as well as greater health care costs. These costs are predicted to become second only to ischemic heart disease by the year 2020 (Scott & Dickey, 2003). The cost of lost productivity and increased medical expenses for depression is $83 billion each year (Greenberg, Stiglin, Finkelstein & Berndt, 1993). Due to its cost and prevalence, treatments for depression have become an important topic for policy makers, researchers, and clinicians. Despite the potential for incredible cost savings associated with increased productivity and reduced medical expenses, the cost-effectiveness of the treatment itself remains a primary concerns among stakeholders in the current health care market.

RELATIONSHIP FACTORS AND DEPRESSION

Couple Relationships

Positive interpersonal relationships can protect against depression, while relationship problems can exacerbate symptoms for individuals predisposed to depression, or worsen depressive symptoms already present. For women, close, confiding relationships appear to serve as a protective factor against depression, and interpersonal relationships help men overcome the difficulties of their illness (Miles, 1988). 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.

As many as 50% of distressed couples have at least one partner with depressive symptoms (Beach & Gupta, 2003). Beach and O'Leary (1992) and Whisman (2007) reported a direct relationship between marital discord and the symptoms of depression. Beach and O'Leary argue that relational problems in a marriage are more likely to cause depression, than depression to cause relational problems. A discordant marriage may also include gender role conflict or power imbalance, which can lead to (or exacerbate) depression symptoms. There is a positive relationship between gender role conflict and depression, and a power imbalance may predispose women for depression (Powers, 2000; Robinson, 2006). This may be why women with marital problems may not have significant improvements in depression with medication alone (Anderson & Holder, 1989).

When one partner is depressed, couple interactions exhibit greater levels of negativity, hostility, tension, and control attempts (Hinchliffe, Hooper, Roberts & Vaughn, 1975). This type of dysfunction has a significant effect on the prognosis for depressed patients, decreasing both recovery rates and level of functioning as well as creating a significant risk of relapse (Keitner, Miller & Ryan, 2005; Whisman & Uebelacker, 2006). Given these effects of relationship functioning on depression, it is not surprising that marital therapy can be more effective than medication in improving relationships and increasing the family's ability to perform their roles and responsibilities (Friedman, 1975; Leff et al., 2000).

Children and Depression

Depression impacts family communication, problem solving, and role functioning, placing a significant strain on all family members (Keitner et al., 2005). Children of depressed parents, either mothers or fathers, are at increased risk for earlier onset (and more severe) depression (Garber et al., 2009; 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 & Holder, 1989). Longitudinally, the disadvantages of growing up with an affectively ill parent persist even after parental depression has remitted (Radke-Yarrow & Klimes-Dougan, 2002).

A cycle of depression and family dysfunction may begin with a child's infancy. During the first months of life, depressed parents talk less with their infants and respond more negatively to bids for attention and care (Lundy, Field & Pickens, 1996). In adolescents, depression has been found to escalate as conflict with parents increases (Sheeber et al., 2011). Lieb et al. (2002) interviewed adolescents, young adults, and their families and found that (a) as infants, children of parents with depression slept more, were fussier, and less active; (b) as toddlers they were more likely to be insecurely attached to depressed mothers and more aggressive toward strangers; and (c) adolescents with depressed parents had lower self-concepts and showed more self-deprecating behaviors. 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.

Effectiveness of Depression Treatment

While medical attention is often considered a necessary component of depression treatment (e.g., Springer & Harris, 2010), research indicates that adding psychotherapy improves outcomes for patients with depression. Sturm and Wells (2006) found that the addition of mental health services to physician-provided services improved the overall outcomes for patients, though these services also increased the monetary costs of treating depression. Nevertheless, psychotherapy has been shown to reduce the number and frequency of mild to severe depressive episodes and to

prevent subthreshold depression from developing into major depressive episodes (Smit et al., 2006). Overall, researchers have found a four times greater likelihood of appropriate treatment for depression by mental health practitioners than by primary care physicians (Wells, Sturm, Sherbourne & Meredith, 1996).

Although many mental health therapists treat depression using individual therapy, studies on the effectiveness of couple and family therapy for depression suggest that both modalities are equally effective in reducing depressive symptomology (Barbato & D'Avanzo, 2008; Bennun, 1985; Gilliam & Cottone, 2005). Furthermore, relationship issues are known to either exacerbate or ameliorate depressive symptoms (Whisman, 2007). Studies on family therapy for depression (e.g., Cottrell, 2003) suggest additional longitudinal effects of family treatment through changes in relational patterns, which has the subsequent effect of lowering the overall costs of depression to families and communities.

Family therapy is frequently an effective treatment for depression and provides benefits for nondepressed family members as well. O'Leary, Riso and Beach (1990) argue that when marital problems preceded depression, marital therapy resulted in positive outcomes; individual therapy did not. Furthermore, Whisman (2001) found that poor marital quality posttreatment was strongly associated with negative outcomes in depression for participants receiving pharmacotherapy or individual therapy. 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, so that contributing factors can be identified and addressed. Family members can be educated and trained to respond to the patient's symptoms. Among couples, treating both partners in couple therapy appears to have a positive impact on the marital relationship for both partners (Beach & O'Leary, 1992) and may be the preferred treatment modality when relationship issues are severe (Barbato & D'Avanzo, 2008).

Children and adolescents can also be benefited by family therapy. 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 (e.g., Gallagher, 2005; Gladstone & Beardslee, 2002). Based on the literature (e.g., Diamond & Josephson, 2005), family interventions can 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-Effectiveness of Family Therapy

A cost effective clinical treatment must provide the most clinical outcomes (such as reduced symptoms) per unit of cost. Accordingly, a cost-effectiveness study examines the cost of a treatment relative to the clinical outcomes it provides, and allows for comparison among treatments (Fals-Stewart, Yates & Klostermann, 2005). Although no cost-effectiveness studies are known to have been completed that specifically focus on depression and family therapy, some recent attempts have been made to investigate this concept with family therapy in general. For example, (Crane & Payne, 2011) compared costs of therapy by type of license and found that patients treated by marriage and family therapists (MFTs) had the highest success (86.53%) and lowest recidivism rates (13.47%) when compared to other mental health professions.

Another critical concept that should be considered in determining cost-effectiveness is the offset effect. An offset effect occurs when patients reduce their general health care use after receiving a behavioral health intervention (Law, Crane, & Berge, 2003). Individuals with depression, as well as their spouses and children, often have difficulty coping with depressive symptoms, resulting in more frequent doctor visits for family members (Anderson & Holder, 1989). (Law, & Crane, 2000) demonstrated a significant 21.5% offset effect after patients participated in marriage and family therapy, compared to a 10% offset effect with individual psychotherapy. Additionally, family therapy participants other than the identified patient also reduced their health care visits by a nonsignificant 30.5% after therapy. (Law, Crane, & Berge, 2003) found that reduction in medical visits persisted after marriage and family therapy was completed.

Studies on the effectiveness of relational approaches (especially couple's therapy) versus individual therapy for the treatment of depression suggest that both modalities are equally effective in reducing depressive symptomology (Barbato & D'Avanzo, 2008; Bennun, 1985; Gilliam & Cottone, 2005). Couple's therapy, however, is also effective in reducing marital distress (Gilliam & Cottone, 2005). Family therapy may also have greater long-term effects for patients and families than individual therapy. In fact, in a recent review of conjoint treatment of depression, Beach and Whisman (2012) concluded the "provision of couple and family services to depressed patients can be rewarding for clinicians and important for patients and their families. However, these services are provided less often than they should be" (p.216). Such findings suggest that marriage and family therapy may be cost-effective as a treatment for depression, which warrants further study.

Research Questions

The purpose of the current study was to contribute to the existing literature by examining the costs of family therapy in managed health care compared to the costs of other modalities. Specifically, the following two questions were of primary concern:

1. What is the difference in the overall cost of therapy using individual, family, and mixed methods (i.e., individual plus family) of delivery?
2. What is the difference in the overall 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 data from Cigna showed that relapse rates for all diagnoses were higher for those who received marital and family therapy (Prohofsky, 2005). However, (Crane & Payne, 2011) were able to demonstrate that overall family therapy is the least costly modality in treating clients with various mental health diagnoses. It is also important to identify 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 was:

3. What is the difference in recidivism rates according to mode of therapy and type of mental health practitioner?

This research project also sought to expand on the topics covered in previous literature by investigating whether recidivism varies within certain subgroups. Due to the differing developmental tasks for children, youth, and adults, and the different presentations of depression, it is possible that the recidivism rate may differ for each group. Therefore, the fourth question was:

4. What is the difference in recidivism rates between genders and age groups?

Having determined the overall cost and recidivism rates of treating depression, cost-effectiveness was then calculated to answer the following questions:

5. What is the cost-effectiveness of therapy by mental health professional?
6. What is the cost-effectiveness of family therapy compared to individual and mixed therapies?

METHODS

Using retrospective, archival, longitudinal methods, subjects were drawn from a large United States health care insurer, Cigna. Four years of data from 2001 to 2004 and a total of 970,000 psychotherapy medical claims were initially included. Every U.S. state was represented with the data. At the time of data extraction, Cigna managed 37 health care plans and served over nine million subscribers in the United States. Client data were available regarding age, gender, diagnosis, episodes of care, cost of services, and type of licensed professional who provided the services.

Cigna structures payment for mental health treatment by the license held and degree type of the provider, with Masters level practitioners being paid less than PhD or MD level providers. All types of mental health professionals were eligible to provide 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.

The use of administrative data in the current study is regulated by the Health Insurance Portability and Accountability Act of 1996 (HIPAA), which is designed to protect personal health care information and ensure confidentiality. All names and personal identifying information for each individual in the data were replaced with a unique and nonidentifiable client identification number. No unique subscriber or provider information could be identified from the data provided.

Sample

Whether an individual was treated for depression was determined using codes from the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR) (American Psychiatric Association [APA], 2000). Individuals who received a primary diagnosis of depression using any one of three diagnostic codes for unipolar depressive disorders (i.e., DSM-IV-TR codes: 296, 300.4, 311) were extracted. The results of this data extraction resulted in the following breakdown: major depressive disorder (DSM-IV-TR, 296; $n = 96,639$), dysthymia (DSM-IV-TR, 300.4; $n = 39,494$), and depressive disorder not otherwise specified (DSM-IV-TR, 311; $n = 28,534$). The combined total was 164,667 clients treated for depression.

No attempt was made to censor subjects who may have ended therapy during the initial part of the study (i.e., 2001), nor those who may have begun therapy just previous to its close (i.e., 2004). The age range of the clients in the date was from 3 years old to 84. In order to make age comparisons, the sample was also divided into three age groups: children from three to 12 years ($n = 6,424$), adolescents from 13 to 18 years ($n = 18,397$), and adults aged 19 years and over ($n = 139,846$).

Definition of Terms

Depression.   Depression was defined as a diagnosis of major depressive disorder, dysthymia, or depressive disorder not otherwise specified, or any primary diagnosis of depressive symptoms.

Individual therapy.   This variable was defined by CPT code 90806 as "an insight oriented, behavior modifying, and/or supportive treatment in an office or outpatient facility, approximately 45–50 min face-to-face with the patient" (American Medical Association [AMA], 2006; p. 277).

Family therapy.   This variable was defined by CPT code 90847, which is conjoint psychotherapy with the patient present (AMA, 2006). Although using 90847 to define family therapy obscures nuances within this modality (e.g., marital versus family treatment), it was impossible to determine from the data which specific submodality was delivered.

Mixed therapy.   This variable includes treatment by a provider on the Cigna health care professional list that included claims for both individual therapy (90806) and family therapy (90847).

Cost of treating depression.   The total billed charges for treating depression by each provider utilizing either individual or family therapy for a particular client.

Episode of care.   An Episode of care (EoC) begins with the first psychotherapy service and ends when the same patient had no psychotherapy claims for 90 days or more. EoC was created as a variable to be consistent with the previous research in this area (e.g., Crane, 2008; Moore, Hamilton, Crane, & Fawcett, 2011; Crane & Payne, 2011) and enables recidivism to be factored into calculations.

Provider type.   Consistent with (Crane & Payne, 2011), six license types were extracted from the data base, representing the licensed mental health and medical practitioners common to each state. Healthcare providers included counselors, MFTs, nurses, medical doctors (MDs), 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., 2010). 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.

Recidivism.   This concept was defined as the same patient returning to therapy for more than one EoC with the same provider type and diagnosis. Although recidivism has traditionally referred to a return of symptoms, for this study recidivism is limited to a return to treatment. Thus, "successful" in treatment in this study should not be equated with elimination of symptoms. However,

defining recidivism by EoC allows for comparison between groups, which was the purpose of the current study.

Cost-effectiveness. As in the studies by (Crane, 2008), (Crane & Payne, 2011), and (Hamilton, Moore, Crane, & Payne, 2011). regarding the cost-effectiveness of treatments, the cost-effectiveness formula used in this study was: Estimated cost-effectiveness = 1st EoC average cost+ (1st EoC average cost*recidivism rate). In these earlier studies, a cost-effectiveness formula was created to compare different types of therapy treatments and professions based on treatment cost and recidivism rate. Application of the formula reveals that lower calculated numbers reflect greater cost-effectiveness, by demonstrating successful treatment at a lower average cost.

ANALYSIS AND RESULTS

Preliminary Analyses

In cost-effectiveness studies, whether to base analyses on raw data is an important consideration (e.g., Crane & Payne, 2011). It was observed that in this data set, the actual costs of treatment by modality were not normally distributed; the data were positively skewed. Because the residuals were excessively skewed and not normally distributed, the data violate the assumption of normality, which underlies some of the statistical methods used in this study. In order to address this problem, the data were log transformed where needed in order to approximate a normal distribution. However, raw data are also presented where applicable to provide a better understanding of cost. Providing the results of actual dollar amounts can be more meaningful to represent real world monetary costs, whereas log transformed data can be more useful in statistical analysis.

Preliminary analysis also indicated that patient age, gender, and the region where the service was provided had a significant impact on costs and recidivism. The cost of therapy provided varied according to the region of the United States in which the therapist resided. Additionally, patient age, gender, and region of the country were significant predictors of recidivism. Accordingly, the influence of these variables was controlled for in the analyses. However, it should also be noted that age and gender were examined separately in four questions. Using age and gender as categorical variables, a logistic regression model was used to compare the differences between three age categories described above.

Research Question One

What is the difference in the overall cost of therapy using individual, family, and mixed methods of delivery? In order to answer this question, an ordinary least squares regression model was employed, with raw cost and log-transformed cost of the first EoC as the dependent variable and treatment modality as the independent variable. Age, gender, and region were controlled for based on the preliminary analysis. The overall model was significant $F(5, 164,661) = 1203.79$, $p < .001$ for all therapy modes with raw cost data. With the log-transformed data, the model was also significant for all modes, $F(5, 164,661) = 2025.36$, $p < .001$. The results for both actual dollars and log dollars of individual, family therapy, and mixed therapy are presented in Table 1. The average number of sessions utilized per patient for family therapy was 5.10 ($SD = 5.75$), 7.86 for individual therapy ($SD = 10.21$), and 13.02 for mixed therapy ($SD = 13.04$). The mean cost using raw data was \$248.65 ($SD = 313.04$) for family therapy only, \$391.31 ($SD = 566.72$) for individual therapy only, and \$631.69 ($SD = 686.48$) for mixed therapy.

Research Question Two

What is the difference in the overall cost of family therapy by type of mental health practitioner? An ordinary least squares regression model was employed, with raw cost and log-transformed cost as the dependent variable and mental health profession as the independent variable. Total cost was regressed on license type, controlling for region of service, therapy modality, patient age, and patient gender. A separate regression was run for each category of the independent variable in order to compare license types. For raw data the model was significant, $F(9, 164,657) = 600.54$, $p < .001$. The costs attributed to nurses were not significantly different from MFTs or social workers (MSWs). The rest of the differences among professions were significant. For log-transformed cost data, the model was also significant, $F(9, 164,657) = 1046.69$,

Table 1
Total Cost in Dollars, First EoC

	N	M (raw $)	SD (raw $)	M (log $)	SD (log $)
Therapy type					
Family only	16,449	248.65	313.04	175.91	64.72
Individual only	131,709	391.31	566.72	237.46	77.48
Mixed mode	16,509	631.69	686.48	459.43	184.93
Total	164,667	401.16	567.15	247.15	81.45
Provider type					
Psychologists	52,922	482.90	652.56	301.87	100.48
MFTs	11,262	381.42	521.96	235.10	78.25
MSWs	63,007	380.25	533.65	235.10	77.48
Nurses	2,187	377.18	535.56	223.63	74.44
MDs	2,612	343.42	630.68	188.67	62.18
Counselors	32,677	322.12	467.91	206.44	70.81
Industry average	164,667	401.16	567.15	247.15	81.45

MDs = medical doctors; MFTs = marriage and family therapists; MSWs = masters and social workers

$p < .001$. With the log-transformed data, nurses were not significantly different than counselors. The rest of the differences among professions were significant. The findings for raw costs and log-transformed costs, broken down by each of the six professional types, are shown in Table 1. The mean value for the raw cost was $322.12 ($SD = 467.91$) for counselors, $343.42 ($SD = 630.68$) for MDs, $377.18 ($SD = 535.56$) for nurses, $380.25 ($SD = 533.65$) for MSWs, $381.43 ($SD = 521.96$) for MFTs, and $482.90 ($SD = 652.56$) for psychologists.

Research Question Three

What is the difference in recidivism rates according to mode of therapy and type of mental health practitioner? Binary logistic regression was used to compare differences in likelihood of recidivism between therapy modes and providers, while statistically controlling for the effects of region, age, and gender. Recidivism was coded as a binary variable according to whether a client had only one, or more than one EoC. Again, a separate regression was run per license type and per therapy mode to determine statistical differences among the groups. The model was significant for license type ($\chi^2 = 667.93$, $p < .001$).

The likelihoods of recidivism by profession are presented in Table 2, and compared to MFTs. The results show that when compared to MFTs, the likelihood of recidivism is 2.9% higher for MDs, 6.6% higher for nurses, 16.6% higher for counselors, 17.8% higher for psychologists, and 18.1% higher for MSWs. MSWs have the highest likelihood of recidivism and MFTs have least likelihood of recidivism. Although the differences of likelihood of recidivism are not significant between MFTs, MDs, and nurses, MFTs also have the largest comparative differences in number of clients.

The model for therapy mode was also significant ($\chi^2 = 744.48$, $p < .001$). Individual, family, and mixed modes were all significantly different on recidivism. 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 for this analysis are presented in Table 2.

Research Question Four

What is the difference in recidivism rates between genders and age groups? A logistic regression model was used to compare the differences between the three age categories that delineated children, adolescents, and adults. Table 2 shows the results for this analysis. After statistically

Table 2
Recidivism by Profession, Modality, and Age

	N	Likelihood of recidivism
Provider type		
Marriage and family therapists (MFTs)	131,709	Compared to MFTs
Counselors	32,677	16.6% more likely*
Medical doctors	2,612	2.9% more likely
Nurses	2,187	6.6% more likely
Marriage and social workers	63,007	18.1% more likely*
Psychologists	52,922	17.8% more likely*
Therapy mode		
Individual	131,709	Compared to individual therapy
Family	16,449	11.7% more likely*
Mixed	16,509	25.6% more likely*
Age group		
Adolescents	18,397	Compared to adolescents
Children	6,424	23.2% more likely to return*
Adults	139,846	15.3% more likely to return*

*$p < .001$.

controlling for region and gender in this analysis, the model examining recidivism by age groups was significant ($\chi^2 = 155.56$, $p < .001$). The results showed that children were not significantly different than adults. Adults were 15.3% more likely to return for a second EoC than adolescents and children were 23.2% more likely to return for a second EoC than adolescents.

Logistic regression was also used to compare the differences of likelihood of recidivism between male and female clients. Age and region were statistically controlled for in this analysis. Results indicated that women were 17.5% more likely to return for treatment than men. A one-way ANOVA also showed that the difference in recidivism rates for gender was significant.

Research Question Five

What is the cost-effectiveness of therapy by mental health professional? The mean values of costs and recidivism by type of mental health professional were entered into the cost-effectiveness formula (Table 3). The cost of each treatment by mental health professional was populated using information obtained in question two. By entering these data into the cost-effectiveness formula, cost-effectiveness was found to be $373.24 for counselors, $397.06 for MDs, $435.28 for MFTs, $435.83 for nurses, $443.49 for MSWs, and $562.00 for psychologists.

Research Question Six

What is the cost-effectiveness of family therapy compared to individual and mixed therapies? The mean values for costs and recidivism by type of therapy were entered into the cost-effectiveness formula (Table 3). The cost of therapy was populated using data obtained in question one. By entering these data into the cost-effectiveness formula, the cost-effectiveness was found to be $289.48 for family therapy only, $453.57 for individual therapy only, $747.04 for mixed therapy.

DISCUSSION

Question one looked at the differences in the overall costs of treating depression by therapy type. Differences between individual, family, and mixed therapy type were all statistically significant in terms of cost, with family therapy only being the least expensive, followed by individual

	Average cost EoC1 ($)	Estimated cost-effectiveness ($)
License type		
Counselors	322.12	373.24
MDs	343.42	397.06
Marriage and family therapists	381.42	435.28
Nurses	377.18	435.83
MSWs	380.25	443.49
Psychologists	482.90	562.00
Industry average	401.16	466.15
Therapy type		
Individual	391.31	453.57
Family	248.65	289.48
Mixed	631.69	747.04

EoC = episode of care; MDs = medical doctors; MSWs = marriage and social workers.

therapy only, and then mixed therapy. As total cost was influenced by the number of sessions, it may be that it took fewer sessions to complete family the rapy in this sample. In a study on the cost-effectiveness of treating substance abuse, (Morgan, Crane, Moore, & Eggett, in press) found that this was the case and that an EoC of family therapy contained fewer session than other modalities.

The results observed for individual therapy may be because patients learn 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. However, this possibility would have to be confirmed in future research given that data on symptoms were absent in this study. The results for family and individual therapy are in contrast to mixed therapy. It is unknown why mixed therapy cost more in this study. Perhaps more time is required to work with both individuals and families to integrate the learning. Also, mixed therapy cases may be more severe and therefore require more treatment sessions.

Question two looked at the differences in overall cost of treating depression by license type. Counselors were the least costly, followed by MDs, nurses, MSWs, MFTs, and psychologists. Psychologists were the most costly. MDs may be most likely to combine pharmacology with counseling and thus may achieve patient stability at a faster rate. MFTs were the second most costly of mental health practitioners. While family therapy was the least costly mode of delivery, it implies that MFTs, as a profession, utilized more sessions to complete therapy. However, given that other research has shown that couples therapy results in greater long-term benefits and results in changes to the system (e.g., Barbato & D'Avanzo, 2008), this higher cost may end up being justified in a long run. Further research would be needed to investigate this possibility as the present investigation was limited to considerations of cost.

While comparisons were made among professionals licensed to treat depression, it should be noted that two such categories exist: (a) those who are medical professionals licensed to prescribe medication, such as physicians and nurses, and (b) 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.

Question three looked at recidivism rates according to therapy mode and type of professional. Individual therapy had the least likelihood of recidivism (as defined in this study); mixed therapy

had the highest likelihood of recidivism; and family therapy was in between. Thus, clients who receive mixed therapy were more likely to return for a subsequent EoC than those who receive family or individual therapy only. Clients who receive individual therapy were the least likely to return for second or more EoC. Although mixed therapy had a higher likelihood of recidivism, this may be because it is a "proxy" for more difficult or complex cases.

Looking at recidivism by type of professional, the likelihood of recidivism is the highest among MSWs, and followed by psychologists, counselors, nurses, MDs, and MFTs. Therefore, MFTs were least likely to have clients return for a second EoC. This may point toward more durable effects of treating depression in the context of the family social system. However, it is also possible that those who complete treatment with MFTs are less willing to return in the event of a relapse, or return to a different provider type.

Question four compared male and female recidivism rates, as well as the three age groups of children, adolescents, and adults. Women in this study were more likely to return for a second or more EoC. This finding supports the existing literature which reports the greater utilization of health resources by women. Also, adults and children are more likely to return for a second or more EoC than adolescents. The low likelihood of recidivism among adolescents may be because they span a shorter number of years than childhood or adulthood as defined in this study. Conversely, it is also possible that adolescents were more likely to terminate treatment early or refuse to return to treatment for a second EoC.

Question five examined cost-effectiveness by type of practitioner. Results indicated that counselor services were the most cost-effective and psychologists the least cost-effective of the talk therapists, and physicians were the most cost-effective of biomedical providers. MFTs fell within the median range on cost-effectiveness. Thus, while not the most cost-effective of clinicians, MFTs are comparable to other mental health professionals.

Question six showed family therapy to be the most cost-effective treatment mode, compared to individual and mixed therapy. These results support the assertion that family therapy as a treatment modality is cost-effective, even when delivered by professionals with different credentials from MFTs. Family therapy, in this study, was both the least costly and the most cost-effective treatment for depression. MFTs, as professionals, were as cost-effective as other practitioners in providing services to individuals and families with depressed members. In addition, they were the least likely of professionals to have patients return for a second or more EoC.

LIMITATIONS

Although the current study suggests that family therapy is a more cost effective treatment, with lower costs than individual or mixed therapy, findings of this study need to be considered with a degree of caution. Limitations of this study include no control group, unknown clients' personal or medical history, possible early termination of family therapy, and unknown severity of depression.

All analyses and conclusions were drawn from information available in Cigna utilization data. It was not possible to examine other aspects of client histories which influence depression and recidivism, such as abuse history, illness or disability, and so forth. Furthermore, no information was available about the outcome of therapy beyond utilization data. Accordingly, the only way to determine success was to construct a variable to measure recidivism, which for this study was a second EoC with the same provider type and diagnosis. In this study, lower recidivism does not necessarily mean that symptoms were alleviated. It is also possible that the participant found treatment to be ineffective and didn't continue or moved to a different provider type.

However, 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. While subjects shared common diagnoses, there was no way to create a control group. Additionally, "family therapy" as defined in this study included both couples therapy and family therapy under the code 90847. Therapists who treat depression will attest that working with a couple where one partner is depressed is much different than working with a family where an adolescent member is the

identified patient. Separating out these two types of treatment might reveal different patterns of cost-effectiveness.

It was found that family therapy was the least costly treatment with fewer total sessions. However, (Moore, Hamilton, Crane, & Fawcett, 2011) 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 usage of medical expenses and economic costs such as lowered productivity and increased absenteeism.

Mixed therapy was found to be the most costly mode of therapy. As 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.

Moreover, the results show that adolescents were the least likely group to return for a second or more EoC. However, this finding needs to be looked at carefully because some children may have crossed over into adolescence and some adolescents into adulthood during the course of the study. This data do not indicate how many subjects would fit these categories, nor how many refused further treatment.

DIRECTIONS FOR FUTURE RESEARCH

All depressed persons with a diagnosis 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. More research is needed to answer questions about the conditions under which therapy is most cost-effective for depression. This is especially true given the limitations of the data set. As no information was available about the amelioration of symptoms, a true cost benefit analysis was beyond the scope of this study. Future studies should factor in not only the costs associated with the delivery of family therapy, but also the benefits associated with improved quality of life, greater productivity, and a decrease in symptoms (to name a few). Conducting a complete cost-benefit analysis would help to clarify the impact of recidivism by including measures of success that provide more information for analysis, as opposed to being limited to determining whether a client returned for a second EoC.

CONCLUSION

This study demonstrates that family therapy (as a modality) is cost-effective for depressed individuals and that MFTs (as a profession) treat depression at a cost comparable to that of other mental health therapists. The cost-effectiveness of MFTs has not been as well-known as it is for psychologists and social workers because it is not as long-lived. Therefore, this study provides important information for health maintenance organizations to have as they make decisions about mental health providers.

Although the findings from this study are limited to cost-effectiveness, other research supports the argument that those who suffer from depression could benefit by having couple or family therapy (Barbato & D'Avanzo, 2008; Beach & Whisman, 2012), with the option of selecting a trained marriage and family therapist as a provider (Crane et al., 2010). Thus, both the patients and their families have a chance at learning to cope with depression together. Family therapy could improve the functioning of both patients and their families in their roles and responsibilities. This study supports arguments for the provision of family therapy for depression by highlighting that family therapy is also a cost-effective option, in addition to offering long-term benefits to both patients and their families.

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