INDIVIDUAL VERSUS FAMILY PSYCHOTHERAPY IN MANAGED CARE: COMPARING THE COSTS OF TREATMENT BY THE MENTAL HEALTH PROFESSIONS

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In an effort to understand how psychotherapy is practiced in the "real world," outpatient claims data were examined to determine the cost of individual and family therapy provided by marital and family therapists, master's nurses, master's social workers, medical doctors, psychologists, or professional counselors. Claims for 490,000 unique persons over 4 years were obtained from CIGNA. Family therapy proved to be substantially more cost-effective than individual or "mixed" psychotherapy. Physicians provided care in the fewest sessions, marital and family therapists had the highest success (86.6%) and lowest recidivism rates (13.4%), and professional counselors were the least costly. Outcomes were overwhelmingly successful, with 85% of patients requiring only one episode of care.

There is scant research comparing the mental health disciplines, either by cost or treatment modality. No large-scale studies could be found that distinguished among the mental health professions, and those that exist fail to take a comprehensive look at payment and treatment patterns. The most relevant studies have either examined a small data set pertaining to one region of the United States or have focused on one particular type of therapy or disorder, such as studies on schizophrenia (Busch, Frank, & Lehman, 2004; Dixon et al., 2001).

The research that is available is limited in both its scope of review and its list of providers. One study used 1998 payment schedules from Medicare and seven large managed care organizations to calculate the cost for 5, 10, and 15 psychotherapy sessions with a psychiatrist, a psychologist, or a social worker (Dewan, 1999). This study found that psychotherapy provided by social workers was the least expensive treatment, but it did not utilize outcome data from the payers, thereby limiting its ability to examine actual costs or treatment patterns.

Other studies have examined the number of sessions and cost by disorder, but do not break them down by profession. One such study examined data from 46 self-insured companies on 150,000 covered employees (Peele, Scholle, Kelleher, & Lave, 1998). It found that depression was the most frequent mental health diagnosis, followed by adjustment disorder, anxiety, and bipolar disorder. However, this study did not examine any differences among the mental health professions.

There is more research on the cost-effectiveness of family therapy versus individual therapy. One study examined Medicaid claims data from the state of Kansas on conduct-disordered youth receiving treatment over a 6-month period (Crane, Hillin, & Jakubowski, 2005). This study found that adolescents receiving in-office family therapy had total health costs that were 32% lower than those who received individual therapy only. Another study on the cost and use

of Medicare ambulatory services examined outcome data from a random sample of 5% of Medicare claims from individuals who were diagnosed with schizophrenia (Dixon et al., 2001). The study found that family therapy had a lower mean cost per person than individual therapy. An additional study demonstrated that patients receiving family therapy reduced their use of medical visits (Law & Crane, 2000; Law, Crane, & Berge, 2003). Again, the studies here focused more on the type of service than the type of provider.

While there is little research comparing the costs and services provided by the different professions, the evaluation of services provided in this study is valid. Research demonstrates that state licensure laws show little variance among the studied professions and their ability to obtain an independent level of licensure or provide core mental health services (Hartley, Ziller, Lambert, Loux, & Bird, 2002, May). Each of the disciplines was evaluated according to a uniform standard, applying the established protocol for clinical mental health diagnosis and treatment. A mental health diagnosis was determined by employing the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*; American Psychiatric Association, 1994) published by the American Psychiatric Association, and the treatment protocol was selected from the *Current Procedural Terminology* (*CPT*), published by the American Medical Association.

The purpose of the study was to explore the practice patterns and subsequent cost-effectiveness of different types of professionals providing individual and family therapy within one behavioral health care management system. It is likely that results from a large national data set could be generalized to other care systems.

METHOD

Design

The study used a longitudinal, retrospective study design using administrative data from one of the leading health care insurers in the United States: CIGNA. CIGNA manages 37 health care plans, serving more than 9 million subscribers. Four years of data (2001–2004) and more than 5 million psychotherapy medical claims for the clients in these health care plans were included in this study. Each entry represented one claim filed by a mental health care provider. These data contained the following information:

1. A client identification number unique to each client.
2. The age and sex of the client.
3. The treatment date.
4. The state where the visit took place.
5. The current procedural terminology (CPT) code.
6. The primary *DSM-IV* diagnosis.
7. The therapist's license type.
8. The highest degree earned by the therapist.
9. The dollar amount of the claim.
10. The number of sessions or visits per claim.

Sample

The subjects comprise the entire population of persons who received services for individual or family therapy from CIGNA during 2001–2004. The age range in the data set is from zero to 103 (*M* = 32.1, *SD* = 15.45). The gender mix of patients included 293,057 women (60%) and 196,592 men (40%). Data from all U.S. states were included in the study.

The CIGNA network is made up of roughly 66,000 mental health providers including about 12,133 (18%) psychiatrists (unique providers or provider groups), 13,145 (20%) psychologists and 2,203 nurse practitioners (3%), 32,385 (49%) MA-level providers, 3,221 (5%) Mental Health (MH)/Substance Abuse (SA) clinics, 2,483 (4%) MH/SA Facility Locations, and 17,925 (21%) Employee Assistance Program (EAP) affiliate locations at any one time.

The use of administrative data for the purposes of compiling aggregate statistics, monitoring trends, and providing information for planning purposes is allowed by the Health Insurance Portability and Accountability Act of 1996 (HIPAA) regulations for protecting personal health care information. In no case was it possible to identify any unique subscriber or provider

information from the data provided. Names and all personal identifying information were removed and a unique and nonidentifiable client identification number was added for each patient prior to the data being delivered.

Procedure

Data cleaning. The raw claims data received from CIGNA contained 5,315,827 claims for the period from 2001 through 2004. The data contained a unique and nonidentifiable client ID number assigned to each patient. Almost all of the claims entries involve only one session per claim ($N = 5,236,228$). Claims for more than one treatment session ($n = 48,692$), claims that recorded a refund to CIGNA ($n = 30,737$), or claims that were not paid ($n = 170$) were eliminated from further consideration. The resulting data set ($N = 5,236,225$) contained only one session or visit with a therapist per data line.

Providers. In the raw data, 93 different therapist licenses are reported. In order to compare different license types, the specific licenses were aggregated into 14 general profession categories: bachelor's nurses, bachelor's social workers, professional counselors, doctors, employee assistance professionals (EAPs), master's nurses, master's psychologists, master's social workers (MSWs), marital and family therapists (MFTs), multiple licensure, physician assistants, psychologists, substance abuse professionals (SAPs), and unknown. This aggregation of license type groups by profession makes possible analysis of therapist delivery practices and cost comparisons.

The data set was further refined to eliminate certain profession categories because these professions are not nationally recognized as independently licensed health care practitioners. As a result, all data for bachelor's-level nurses, bachelor's-level social workers, EAPs, master's-level psychologists, physician assistants, and SAPs ($n = 439,223$) were eliminated from the data set.

Also, as it is not possible to conduct analyses with claims from providers with unknown licensure, all of the data entries that did not list a specific license type were eliminated ($n = 344,188$). In addition, to identify relatively distinct types of practitioners, claims from providers with multiple licenses or those who held a general mental health license ($n = 1,299$) were excluded. Only the first license identified as "primary" was considered.

In order to clearly compare the practices of different types of professionals, all entries for clients who saw therapists of more than one profession type ($n = 798,766$) were eliminated. The final data set consisted of 3,927,844 sessions (and 489,649 unique patients) involving therapists of one of six profession types: marriage and family therapists, master's nurses, master's social workers, medical doctors (MDs), professional counselors, or psychologists.

Episodes of Care (EoC). EoC are defined by CIGNA as a series of services for the same patient that is continuous; it began with the first psychotherapy service and ended after the individual had no psychotherapy claims for 90 days or more. As the data set included the date of each service, it was possible to compute the number of EoC for each patient. The number of sessions in the first EoC per patient in the data set ranged from 1 to 394 ($M = 6.95$, $SD = 8.91$). However, more than 85% of all unique patients concluded therapy with the first EoC. As a result, the first or second EoC for each patient was the main focus of the study.

For the purposes of the present investigation, success and recidivism are calculated from the first EoC. *Success* is defined as patients who used only one EoC in the time frame of the study. *Recidivism* is defined as the same patient who returned to therapy for a second (or more) EoC with the same provider type.

Services and diagnoses. Data for all psychotherapy charges billed for individual or family therapy were available. The claims lines were classified by providers under the *Current Procedural Terminology* (*CPT*) codes of individual psychotherapy therapy (90806) or family psychotherapy therapy (90847; American Medical Association, 2006). Also, provider-assigned *DSM* diagnoses for each claim were included. *DSM* diagnostic categories were summarized into 11 groups: Anxiety & PTSD, Mood Disorders, Disruptive Behavior, Substance Use & Abuse, Dissociative Disorders, Sexual Disorders, Schizophrenic/Psychotic, Eating Disorders, Adjustment Disorders, Relational Problems, and "All Other" (Doherty & Simmons, 1996). In some cases ($n = 5,581$), the claims data contained more than one *DSM* diagnosis in the first EoC. For analyses related to diagnoses, the most frequently used diagnoses for each patient in the first EoC was considered. For multiple diagnoses in the first EoC with equal numbers of

sessions, the first diagnosis given was considered primary. For analyses related to the second EoC, the diagnoses were not relevant to the study.

Cost.   This variable is the dollar amount paid by CIGNA for each therapy service.

Research questions.   As the purpose of the study was to explore the practice patterns of different types of professionals providing individual and family therapy, the following research questions were considered:

Question 1. What are the number of sessions, cost, and outcome of the first Episode of Care by profession?

Question 2. What are the number of sessions and cost in the first Episode of Care by disorder?

Question 3. Do the different professions treat the same or different disorders?

Question 4. What is the cost and outcome of the first Episode of Care by Individual Therapy Only vs. Family Therapy Only vs. Mixed Therapy?

Question 5. Which professions provide the highest proportion of individual, family therapy, and mixed therapy types?

RESULTS

Preliminary Analyses

The results presented here are based on raw data. Although data transformation to meet the assumptions of normalcy was considered, the decision to use the raw data instead of data transformation was made. This allows for more meaningful presentation of real-world monetary costs and outcomes. In any event, there were no sustentative differences on the study results, regardless of which form of data was considered. Tables containing results using transformed data are available from the first author.

As CIGNA reports different pay scales for different regions of the United States, a preliminary analysis was conducted by region to determine if these pay differences needed to be considered in the present analyses. An SPSS General Linear Model (GLM) analysis of variance (ANOVA) revealed significant differences between amounts paid by region, $F(5, 489643) = 1240.51$, $p < .001$. As a result, when evaluating the cost of service, the region where the service was provided was controlled in subsequent analyses.

For regional comparison purposes, states were summed by CIGNA into six distinct regions: Northeast (CT, DE, MA, ME, NH, NJ, NY, PA, RI, VT); Midwest (IL, IN, IA, KS, MI, MN, MO, ND, NE, OH, OK, SD, WI); Pacific (AK, CA, HI, OR, WA); South (AL, AR, DC, FL, GA, KY, LA, MD, MS, NC, SC, TN, VA, WV); West (AZ, CO, ID, MT, NM, NV, TX, UT, WY); and ''other'' for services outside the United States. Results in Table 1 demonstrate that there are significant cost differences in the first EoC by region, with the Northeast as most expensive, followed by the Pacific, the Midwest, the South and West (very similar to each other), and ''Other.'' A general linear model analysis of variance revealed significant differences between the number of sessions provided in each region, $F(5, 489643) = 830.91$, $p < .001$. The means and standard deviations are presented in Table 1. All comparisons (other than the South and West, who were paid at essentially the same rates) were statistically different. As a result, all subsequent analysis related to the costs of therapy controlled for this variable.

In this and all subsequent ANOVAs, a Levene statistic was computed to test the assumption of homogeneity of variances. In each case the statistic was significant, meaning that the data did not meet the statistical assumption. However, ANOVA is generally robust to violations of this assumption.

Table 1
Regional Differences in Number of Sessions and Costs in First Episode of Care

Region	N	M	SD	M ($)	SD ($)
Midwest	71,655	6.93*	8.62	369.09*	501.18
Northeast	121,884	8.14*	10.35	410.27*	588.90
Other	58	2.38*	1.95	83.81*	62.34
Pacific	49,141	7.64*	9.73	389.94*	568.28
South	144,358	6.22	7.67	286.45	386.95
West	102,553	6.24	8.29	288.02	431.35
Total	489,649	6.95	8.91	340.05	491.56

*$p < .001$.

In addition, as health care costs are known to vary by gender (e.g., Jameson, Shuman, & Young, 1978), the overall psychotherapy costs for each gender were investigated. A GLM-ANOVA revealed significant differences between genders (males, $n = 196,592$, $M = \$322.00$, $SD = \$451.41$; females, $n = 293,057$, $M = \$352.17$, $SD = \$516.39$), $F(1, 489647) = 443.51$, $p < .001$.

The next research question sought to determine if different types of providers treat the same or different types of disorders. The summary data presented in Table 3 demonstrate that the majority of care was for adjustment disorders (36.2%), followed by mood disorders (34%), then anxiety/PTSD disorders (12.2%). These three diagnoses accounted for 82.4% of all claims; all other disorders were diagnosed at very low rates.

In order to examine the differences in diagnoses treated by profession, researchers conducted a Chi-square test of independence. This test compared the average percentage of cases seen by each of the six professional groups by the ten specific *DSM* categories and "all other" diagnoses (Table 3). There was a significant relationship between profession and *DSM* diagnoses, $\chi^2(50, 1 = 9037.94, p < .001)$, meaning that different professional groups tended to treat (or diagnose) patients with different diagnoses. For example, nurses diagnosed the highest percentage of mood disorders (42.4%) as compared to the industry average of 34% of patients seen for psychotherapy.

One major difference was that MFTs tended to treat patients with adjustment disorders (42.6%) at a higher rate than the industry, which on average diagnosed 36.2% of their patients with this disorder. By contrast, MDs seldom provided treatment for this diagnostic group (12.6% of patients seen). Anxiety disorders were diagnosed at fairly consistent rates across all of the disciplines, with an industry average of 12.2% of patients being seen for this diagnosis. As the different disciplines treated different proportions of disorders, the disorder type was used as a control variable in subsequent GLM-ANOVA analyses.

Research Questions

The first main research question investigated the number of sessions, costs, and outcome of the first EoC by professions. Results for this question (Table 2) suggest an overall ranking from fewest number of sessions required in the first EoC to be as follows: MDs, nurses, professional counselors, MFTs, psychologists, and MSWs. The industry average for the first EoC was $M = 6.95$ ($SD = 8.91$) across all professions.

Comparing the disciplines on the average number of sessions required in the first EoC demonstrates that they are significantly different. For ease of comparison, the professions are ranked from fewest number of sessions to most as follows: (a) MDs, (b) nurses and professional counselors (both ranked as b because they are not different from each other), (d) MFTs, (e) psychologists, and (f) MSWs. All comparisons of the mean differences between professions were significant ($p < .001$) except for professional counselors and nurses, whose average number of sessions in the first EoC was essentially identical. The overall $F(16, 489632)$ value of the

Table 2
Number of Sessions, Outcomes, and Cost of the First Episode of Care (EoC) by Profession

Profession	Total cases in first EoC	Total cases in second EoC	M of sessions in first EoC	% Success	% Recidivism	Average cost first EoC[a] ($)	Estimated cost-effectiveness[a] ($)	Cost-effectiveness rank
MDs	6,408	928	4.23* (8.71)	85.5	14.5	317.10 (769.46)	363.08 (881.03)	2
MFTs	35,609	4,785	6.95* (8.51)	86.6	13.4*	314.97 (445.41)	357.20 (505.09)	2
MSWs	175,437	27,480	7.26* (9.15)	84.3	15.7*	327.36 (467.67)	378.75 (541.09)	2
Nurses	5,192	736	6.25 (8.78)	85.8	14.2*	345.10* (508.56)	394.10* (580.77)	5
Professional counselors	103,730	14,976	6.34 (7.92)	85.6	14.4	279.19* (393.43)	319.39* (450.09)	1
Psychologists	163,273	25,857	7.13* (9.31)	84.2	15.8*	398.58* (557.19)	461.55* (645.22)	6
Overall	489,649	74,762	6.95 (8.91)	84.7	15.3	392.18 (491.56)	340.05 (567.29)	

Note. Values given in parentheses are *SD*. MDs, medical doctors; MSWs, master's social workers; MFTs, marital and family therapists.
[a]Estimates controlling for differences in regional and gender- and diagnosis-related costs.
*$p < .000$.

Table 3

(A) Number of Cases by Disorder and Profession for First Episode of Care (EoC). (B) Number of Sessions and Cost of Care by Disorder in First EoC

(A)

Disorder grouping	Counselor		MD		Nurse		MSW		MFT		Psychologist	
	N	Proportion	N	Proportion	N	Proportion	N	Proportion	N	Proportion	N	Proportion
Anxiety & PTSD	11,469	11.1	828	12.9	700	13.5	21,101	12	4,271	12	21,426	13.1
Mood Disorders	33,066	31.9	2,698	42.1	2,201	42.4	63,645	36.3	11,364	31.9	53,326	32.7
Disruptive Behavior	1,392	1.3	63	1	31	0.6	2,335	1.3	500	1.4	3,167	1.9
Substance Use & Abuse	3,228	3.1	299	4.7	50	1	4,166	2.4	426	1.2	1,791	1.1
Dissociative Disorders	454	0.4	58	0.9	44	0.8	1,004	0.6	148	0.4	1,059	0.6
Sexual Disorders	51	0.1	4	0.1	3	0.1	107	0.1	21	0.1	101	0.1
Schizophrenia/Psychotic	96	0.1	51	0.8	5	0.1	212	0.1	20	0.1	141	0.1
Eating Disorders	565	0.5	33	0.5	38	0.7	1,088	0.6	178	0.5	1,208	0.7
Adjustment Disorders	41,088	39.6	809	12.6	1,452	28	62,987	35.9	15,156	42.6	55,909	34.2
Relational Problems	1,105	1.1	14	0.2	23	0.4	1,441	0.8	449	1.3	780	0.5
All Other	11,216	10.8	1,551	24.2	645	12.4	17,351	9.9	3,076	8.5	24,365	15
Totals	103,730	100	6,408	100	5,192	100	175,437	100	35,609	100	163,273	100

(B)

Disorder grouping	Industry population		M number of sessions in first EoC	M cost by disorder ($)	Total $ by disorder in first EoC
	N				
Anxiety & PTSD	59,795	12.2	7.85 (9.72)	389.53 (541.68)	23,292,078
Mood Disorders	166,300	34	8.04 (10.32)	397.22 (565.74)	66,057,447
Disruptive Behavior	7,488	1.5	6.25 (7.17)	309.85 (388.68)	2,320,140
Substance Use & Abuse	9,960	2	5.74 (7.69)	292.27 (481.21)	2,910,960

Table 3
Continued

(B)

Disorder grouping	N	Industry population	M number of sessions in first EoC	M cost by disorder ($)	Total $ by disorder in first EoC
Dissociative Disorders	2,767	0.6	8.35 (11.04)	418.10 (598.36)	1,156,870
Sexual Disorders	287	0.1	6.70 (9.45)	340.32 (608.38)	97,673
Schizophrenia/Psychotic	525	0.1	7.80 (10.22)	405.25 (567.96)	212,756
Eating Disorders	3,110	0.6	8.90 (11.94)	444.70 (652.28)	1,383,014
Adjustment Disorders	177,401	36.2	5.94 (7.02)	282.43 (378.09)	50,103,357
Relational Problems	3,812	0.8	5.06 (5.70)	239.13 (323.44)	911,564
All Other	58,204	11.9	6.22 (8.65)	310.72 (495.81)	18,061,700
Totals	489,649	100	6.95 (8.91)	340.05 (491.56)	166,507,559

Note. Values given in parentheses are *SD*. PTSD, posttraumatic stress disorder.

ANOVA comparison was 518.80 ($p < .001$), meaning that the majority of the groups were significantly different from each other. The means and standard deviations are presented in Table 2. Post hoc comparisons using the Fisher LSD test revealed that the present ranking of professions demonstrated significant differences between groups (other than professional counselors and nurses) on the average number of sessions in the first EoC by profession. If one were to consider results within types of providers, the results become somewhat more complete. The two types of biomedical providers were ranked as MDs first, followed by nurses. Within the four types of talk therapy providers, professional counselors were first, followed by MFTs, then MSWs, and finally psychologists.

In terms of the costs of care by professions, a GLM-ANOVA was conducted on the average costs for the first EoC. While controlling for gender, region, and diagnosis grouping, the analysis revealed significant differences between the groups, $F(21, 489627) = 726.75$, $p < .001$. The means and standard deviations are presented in Table 2. The ranking of the average costs of care from most to least cost-effective were as follows: (a) professional counselors, (b) MFTs, MDs, and MSWs (ranked tied as b, meaning they were not different from each other), (e) nurses, and (f) psychologists. Post hoc comparisons using the Fisher LSD test revealed that the present ranking of professions demonstrated significant differences between groups (other than MFTs/MDs and MDs/MSWs) on the average cost of care in the first EoC by profession.

In terms of outcome as measured by the success and recidivism rates, patients treated by MFTs had the highest success (86.6%) and lowest recidivism rates (13.4%) compared to the other mental health professions. The next most effective professional group was nurses, with 85.8% success and 14.2% recidivism rates. The professional counselors' patients experienced a success rate of 85.6% with 14.4% recidivism. Next were MDs, whose patients averaged 85.5% success and 14.5% recidivism rates. Finally were MSWs with 84.3% success and 15.7% recidivism and psychologists with 84.2% success and 15.8% recidivism rates.

In order to examine the differences in recidivism rates by profession, researchers conducted a Chi-square test of independence. This test compared the average recidivism rates of the six professional groups (Table 2). There was a significant relationship between profession type and recidivism rate, $\chi^2(489649 = 217.42$, $p < .001)$. The ranking of the professions was as follows: MFTs, nurses, MDs/professional counselors, MSWs, and psychologists. The recidivism rates for MFTs were the lowest, while all other professional groups had significantly higher rates. The highest recidivism rates were for patients treated by psychologists, at 15.8%.

Next, the average cost for the first EoC for each professional group is presented in Table 2. Four tiers of providers by cost of care in the first EoC emerged. A GLM-ANOVA (controlling for region payment and diagnoses differences) documented that there are four tiers of the cost of employing different providers, $F(5, 489643) = 591.66$, $p < .001$. The most cost-effective profession is professional counselors. Second is a cluster of MDs, MFTs, and MSWs. All of these professions demonstrated similar results (fee * the number of sessions used in first EoC, controlled for geographical region and diagnoses type). Third were nurses and finally psychologists are the least cost-effective to employ.

Finally, an estimation of the cost-effectiveness for each profession was computed as follows: Estimated cost-effectiveness = 1st EoC average cost + (1st EoC Average Cost * recidivism rate). This equation helps answer the question of "what does psychotherapy cost per patient, taking into consideration the relative success and recidivism rates associated with each discipline?" It takes into consideration the average number of sessions in the first EoC, the cost of providing the first EoC, and the outcome of care in the first EoC (as measured by recidivism rates). A GLM-ANOVA documented that there are four tiers of the cost-effectiveness of employing different providers, $F(5, 489643) = 888.05$, $p < .001$. Results demonstrate that overall, professional counselors are most cost-effective, followed by MFTs and MDs grouped together, and MSWs and nurses, together with psychologists, as the least cost-effective.

The second question investigated the number of sessions required in the first EoC and related cost of treatment by disorder types. As can be seen in Table 3, the disorders are ranked into four clusters from most costly to least: (a) eating disorders, dissociative disorders, and schizophrenia/psychotic; (b) mood, anxiety, sexual, other, disruptive, and substance abuse; (c) adjustment disorders; and (d) relational problems.

Table 4

Cost and Outcome of the First Episode of Care (EoC) by Individual Versus Family Versus Mixed Therapy

Therapy type	Cases in first EoC	Cases in second EoC	*M* of sessions in first EoC	Cost of first EoC ($)	% Success	% Recidivism	Cost-effectiveness ($)
Individual therapy	365,986	54,583	6.80* (8.91)	333.63 (498.63)	85.1	14.9*	384.85 (575.47)
Family therapy	68,331	10,531	4.44* (5.01)	216.30 (270.79)	84.6	15.4*	249.11 (312.05)
Mixed therapy	55,332	9,648	11.04* (11.04)	535.38 (588.08)	82.6	17.6*	617.32 (678.81)
Industry average			6.95	340.0 (491.56)	84.7	15.3	392.18 (567.29)

Note. Values given in parentheses are *SD*.
*$p < .000$.

In order to examine the differences in costs by disorder (controlling for region), a GLM-ANOVA revealed significant differences between the groups, $F(15, 489633) = 794.86$, $p < .001$. The means and standard deviations are presented in Table 3. Post hoc comparisons using the Fisher LSD test revealed that the present ranking of disorders demonstrated significant differences between the costs of treating certain ranked "clusters" of problems with very similar costs for treatment.

The third question considered the cost and outcome of the first EoC by modality of therapy. Results for this question (Table 4) demonstrate that overall (while controlling for gender, diagnosis, and region), patients who received only family therapy required the fewest number of sessions. The next most cost-effective (i.e., required the least number of sessions) was individual therapy alone. Finally, the least cost-effective was therapy where patients received a mixture of both individual and family therapy.

A GLM-ANOVA revealed significant differences between the groups on the numbers of sessions in the first EoC, $F(8, 489640) = 2802.09$, $p < .001$. The means and standard deviations are presented in Table 4. Post hoc comparisons using the Fisher LSD test revealed that the least number of sessions were provided in family therapy, followed by individual therapy, with mixed therapy using the greatest number of sessions. In terms of cost-effectiveness of therapy, the most cost-effective form of therapy is family therapy, followed by individual therapy with mixed therapy as least cost-effective.

In terms of outcome as measured by the success and recidivism rates, individual therapy had the lowest recidivism rate, followed by those who received exclusively family therapy. The highest recidivism rate was associated with mixed therapy. In order to examine the differences in recidivism rates by modality, researchers conducted a Chi-square test of independence. This test compared the average recidivism rates of the three therapy types (Table 4). There was a significant relationship between therapy type and recidivism rate, $\chi^2(2, 1 = 237.68, p < .001)$, with mixed therapy having the highest recidivism rate, followed by family therapy and then individual therapy.

Finally, the cost-effectiveness measure was computed (equation 1) for the mode of therapy. This equation helps determine the typical cost per plan participant who uses mental health services if the participant is treated by any provider type with each mode of therapy. The formula also takes into consideration both the cost per session and the success/recidivism rates demonstrated by each modality. A GLM-ANOVA revealed significant differences between the modes

of therapy on cost-effectiveness, $F(2, 489646) = 6742.11$, $p < .001$. Results demonstrate that overall, using family therapy exclusively was the most cost-effective form of psychotherapy. Individual therapy alone was next, while therapy that mixed both individual and family therapy for the same patient was the least cost-effective.

The fourth research question sought to determine if different types of providers treat the same or different types of disorders. The summary data presented in Table 3 demonstrate that the vast majority of claims (82.4%) were a combination of just three disorders: mood disorders (34%), adjustment disorders (36.2%), and anxiety/PTSD disorders (12.2%). All other disorders are diagnosed at relatively low rates.

In order to examine the differences in rates of diagnoses by disciplines, researchers conducted a Chi-square test of independence. This test compared the average percentage of cases seen by each of the six professional groups by the ten specific *DSM* categories plus "all other" diagnoses (Table 3). There was a significant relationship between profession and *DSM* diagnoses, $\chi^2(50, 1 = 9037.94, p < .001)$, meaning that different professional groups tended to treat (or diagnose) patients with different diagnoses (or of different types).

The biggest differences are the proportion of mood disorders seen by MDs (42%) and nurses (42%). Both proportions are higher than the industry average of almost 35%. The next contrast that stands out is the use of the adjustment disorder diagnoses by MFTs (42.6%) and MDs (2.63%). This diagnosis is made more frequently by MFTs and very rarely by MDs than the industry average of 36.2%.

The next question was which professions provide the highest proportion of the different therapy modalities. In the industry, the dominant form of therapy provided was individual therapy; 74.7% of all cases were treated exclusively with this form of psychotherapy. Treatment with exclusively family therapy was provided second most often (14%). Finally, mixed therapy was used the least frequently, with 11.3% of cases treated by combining individual and family modalities.

As different forms of therapy produce different costs and outcomes, the professions were compared on the proportion of the types of care they provided. In order to examine the differences by modality, researchers conducted a Chi-square test. This test compared the average percentage of therapy provided in each modality by each of the six professional groups (Table 5). There was a significant relationship between profession and therapy modality, $\chi^2(10, 1 = 2869.96, p < .001)$, meaning that different professional groups used different therapy modalities at different rates. MDs provided the highest rate of exclusively family therapy at 22.3%, followed by MFTs (17.4%) and professional counselors (17.1%), and a third cluster of professionals including MSWs (12.5%), psychologists (12.5%), and nurses (12%).

Table 5
Modalities of Therapy Provided by the Professions in the First Episode of Care

Profession type	Individual therapy	% Individual therapy	Family therapy	% Family therapy	Mixed therapy	% of mixed by profession	Total cases
Professional counselors	73,961	71.3*	17,761	17.1	12,008	11.6*	103,730
MDs	4,816	75.2*	1,430	22.3*	162	2.5*	6,408
Nurses	4,091	78.8*	621	12*	480	9.2*	5,192
MSWs	133,092	75.9*	21,859	12.5*	20,486	11.7*	175,437
MFTs	24,893	69.9*	6,180	17.4	4,536	12.7*	35,609
Psychologists	125,133	76.6*	20,480	12.5*	17,660	10.8*	163,273
Total	365,986	74.7	68,331	14	55,332	11.3	489,649

Note. MDs, medical doctors; MSWs, master's social workers; MFTs, marital and family therapists.
*$p < .000$.

For individual therapy, the professions were rank ordered as nurses, psychologists, MSWs, MDs, professional counselors, and MFTs. All proportional differences were statistically significant, meaning that this ranking accurately revealed each discipline's propensity to treat a variety of disorders with individual therapy. From the rankings, nurses and psychologists stood out as using individual therapy proportionally more, while MFTs and professional counselors used this form less than the industry standard.

Mixed therapy was used proportionally more by MFTs than the industry average (12.7%). MSWs (11.7%) and professional counselors (11.6%) were almost at the industry average of 11.3%. MDs (2.5%), nurses (9.2%), and psychologists (10.8%) used this form of therapy less than average.

DISCUSSION

The first research question investigated the number of sessions, costs, and outcome of the first EoC by professions. These findings demonstrate that there are significant differences in the cost of care provided by different mental health practitioners. When regional, gender, and diagnoses differences were controlled, the average cost of care is lowest for psychotherapy provided by professional counselors, MFTs, MDs, MSWs, nurses, and psychologists, in that order. However, these results need to be interpreted with caution. As patients may have self-selected or were selectively referred to provider types, differences between provider disciplines may be because some providers saw more difficult cases or complex problems. The present study does not contain any measure of problem severity, so direct analysis of this issue is not possible. Additionally, the self-selection or selective referral may be related to workforce issues and the number of providers available for any given client. It is not likely that provider types are evenly distributed across the United States. Some patients may not have had a choice between provider types.

Overall, psychotherapy is relatively brief, inexpensive, and effective. The industry average for the first EoC was $M = 6.95$ ($SD = 8.91$) sessions across all disorders and all professions. The average cost of psychotherapy was $M = \$340.05$ ($SD = \$491.56$). However, as demonstrated by the fairly large standard deviations, there is quite a bit of variability in the cost data. This suggests that some patients were remarkably more or less expensive than the average. One set of variables that may account for this wide range of costs is the severity or chronicity of the problems being experienced by the patients in the study. Unfortunately, no data related to these issues were available for the present evaluation. In terms of overall outcomes of therapy, the vast majority of cases were resolved with one EoC (84.7%). The number of cases that required a second EoC was a modest 15.3%. These results are similar to those presented by Goldman et al. (2006), who demonstrated that including mental health benefits in health care plans at a level equivalent to physical health did not increase overall health care costs.

In terms of outcome as measured by the present cost-effectiveness measure, the results demonstrate that overall, professional counselors are the most cost-effective, followed by MFTs and MDs grouped together, and MSWs and nurses together with psychologists as least cost-effective. Even though there may be a host of reasons that may drive these differences in costs, they do exist as a descriptive matter.

The second research question related to the number of sessions and cost in the first Episode of Care by disorder. Some disorders are relatively less costly, with relational problems ranked as least expensive, followed by adjustment disorders, substance use and abuse, then disruptive disorders, "all other," sexual disorders, anxiety, mood, schizophrenic/psychotic disorders, and dissociative disorders followed by eating disorders as the most expensive. Of course some of these disorders are quite different in terms of their overall severity. For example, adjustment disorders are diagnosed after a shorter duration than other types of disorders.

The issue of what modality one could use in providing psychotherapy was addressed by comparing the costs and outcomes of three modes of therapy. As family therapy is associated with lower costs in the first EoC, the effect of encouraging greater use of this treatment modality for patients now seen exclusively in individual therapy was considered. Estimates of the potential cost savings to CIGNA of encouraging professionals to provide family therapy were calculated in two ways. These estimations considered the possibility of moving 10% or 20% of

those seen exclusively in individual therapy to family therapy exclusively. Movement of a relatively conservative 10% (36,599) of those who typically receive individual therapy exclusively to family therapy exclusively results in cost savings of $135.94 per patient, or about $5 million over the 4 years of the study. A more ambitious effort to move 20% of those seen solely in individual therapy would result in cost savings of approximately $9.9 million for family therapy exclusively for the same time frame. Of course, there would be some cost of changing the current policies and procedures of management and providers. However, the amounts of such potential costs are unknown.

A decision to mix therapy modalities has advantages and disadvantages. The short-term cost is highest for this combination of care, and the recidivism rate is the highest of the modalities of therapy. This suggests that using one form of therapy, rather than mixing modalities, may be an advantage. This result is similar to Wood, Crane, Law, and Schaalje (2004), who suggest that using a single complete model of relationship therapy may be superior to combining models of treatment. Participants who receive more than one mode of therapy may experience some confusion about treatment goals and methods. Alternatively, providers may be responding to complex and severe clinical cases with different forms of therapy.

The comparisons of modality need to be done with caution and may be related to a potential number of patient and provider characteristics. For example, mixed therapy may be a "proxy" measure of problem severity. Providers may be maximizing their impact on patient problems by including as many treatments and as many members of the patient's social and family system as possible. Alternatively, some portion of the patients in this sample come from contexts that do not include much of a support system or extended family. In this case, the exclusive use of family therapy may be related more to the availability and willingness of other family members to participate in therapy than to the effect of family therapy alone. Other potential issues include differences in education or other socioeconomic variables. Again, future research should account for problem severity in comparing modalities of therapy.

However, one is left to wonder if these comparisons between therapy modalities are appropriate. The present discussion suggests that the descriptive comparisons across therapy types are appropriate as there are no known policies in CIGNA that encourage one form of therapy over another. The amount paid per psychotherapy session is set as a per hour, rather than per procedure, charge. Individual, family, and mixed therapy are paid at the same rates.

Ultimately, the decision to select different modalities of therapy rests with patients, providers, and employee benefit and case managers. But in general, as a number of family therapy approaches have been shown to be effective (e.g., Carr, 2000; Morgan & Crane, in press; Sprenkle, 2002; Stratton, 2005), at least offering this approach to patients seems warranted where it is appropriate. There should be at least short-term cost benefits and reasonable outcomes as measured by success and recidivism rates. In addition, including family therapy as a treatment modality in health care systems does not seem to increase health care costs (e.g., Christenson & Crane, 2004; Crane, 2007; Crane et al., 2005). Now may be the time to begin to educate policy makers and begin to offer this form of care to families who desire to receive it.

In terms of policies related to what forms of psychotherapy are allowed in health care systems, program managers should consider encouraging more family therapy as the treatment of choice whenever applicable. The psychotherapy costs savings could be significant even after considering the potential costs of such a program. Given the lower recidivism rates of therapy that involves family members, managers should be confident that there would not be a drop in overall service quality if such a program is initiated. In addition, family-based therapy has been shown to be the most cost-effective form of psychotherapy for a number of specific disorders, such as bulimia (e.g., Le Grange, Crosby, Rathouz, & Leventhal, 2007), and should be utilized whenever possible.

Finally, all of the comparisons of types of therapy need to be considered in light of the finding that the vast majority of patients were successfully treated with just one EoC. It appears that regardless of the form of therapy, the majority of participants respond well to treatment and providing that treatment is relatively inexpensive.

The fourth question addressed the types of disorders treated by the industry and professions. More than 70% of all care is provided for just two diagnoses, adjustment and mood

disorders. When adding in the 12% of cases seen for anxiety disorders, 82% of all cases are treated for just these three disorders.

The differences in diagnoses given or problems treated are in terms of mood and adjustment disorders. Physicians and nurses, who are most likely to be practicing in a medical setting, use the diagnosis of mood disorders much more frequently than do the other mental health disciplines. Also, by comparison, MFTs use the diagnosis of adjustment disorder more frequently, and physicians use it far less often than the other disciplines. Here again, one is left to wonder if the professions treat different types of problems or if they use the diagnoses differently. There is really no answer to this question other than to note that there is no reason to believe that the diagnoses given by any mental health provider group is "right" or "wrong." Further research would need to examine the inter-rater reliability of diagnoses given by different professional groups. However, for the purposes of the present discussion, the working assumption is that the diagnoses given are accurate. As such, one must also conclude that MDs, nurses, and MFTs treat different types of disorders.

The fifth question compared the frequency of overall care provided by the different modalities. Not surprisingly, the dominant form of therapy provided was individual therapy. Treatment with exclusively family therapy was provided second most often. Finally, mixed therapy was used the least frequently. The dominance of individual and family therapies might be one reason that overall psychotherapy is relatively inexpensive, with the industry average cost of therapy being about $392.18. If mixing individual and family therapies were the industry norm, the average costs for each patient would increase almost 60%. Conversely, if the dominant form of therapy were family therapy, the cost per patient would be cut by almost 36%. Policy makers should consider encouraging their providers to use family therapy treatments whenever possible. This process, of course, assumes that all mental health disciplines are competent to provide family therapy. This may or may not be the case. Additional research is underway to determine the required training for each of the mental health disciplines (Crane, Shaw, Christenson, Larson, Harper, & Feinauer, in press).

Nurses and psychologists used individual therapy exclusively more than MFTs and professional counselors. MDs used family therapy proportionally more than any other mental health discipline. This may account, in part, for the relatively high cost-effectiveness ranking for physicians. Using this form of therapy may be offsetting the overall higher fees paid for physicians' services, making them relatively cost-effective as a group. Following MDs in using family therapy are MFTs and professional counselors. This service is provided proportionally least by nurses, MSWs, and psychologists. The use of family therapy may well account for MFTs and professional counselors being the two most cost-efficient mental health providers. On the other hand, MFTs used mixed individual and family therapy more frequently than the other disciplines. This may account for their second-place finish in the estimate of cost-effectiveness in spite of their having the lowest recidivism rates. The low use of mixed individual and family therapy may also account for the relatively high cost-effectiveness ranking of MDs, who were ranked as the third most cost-effective discipline, in spite of their relatively higher cost per session.

Policy Implications

The main implications of these results are for both the profession and practice of family therapy. In terms of the professions, all of the professions are relatively cost-effective. However, the differences, although statistically significant, may or may not be important. Given the size of this population, even small differences across large samples yield statistically significant results. In addition, problems with patient and provider characteristics remain at the heart of interpreting these findings. For example, it may be that problem severity could be driving all of these findings. Future research needs to account for this issue (among others).

As a descriptive study, these findings suggest that some providers are relatively less expensive to employ, even when controlling for the different fees paid to each profession. Professional counselors were the most cost-effective, followed by a second cluster of MFTs, MDs, and MSWs. Nurses were distinctively less and psychologists were the least cost-effective of all. Including MFTs and other master's-level practitioners is a relatively cost-effective choice, and there is no evidence that excluding any of the professions in the mental health industry makes

economic sense. Hopefully, these finding will help end the "turf" debates around who provides psychotherapy, at least from an economic point of view, and providers can turn their attention to more productive activities.

In terms of the practice of family therapy, the present results demonstrate that including family therapy as a "covered" service would not likely increase mental health care costs. In fact, to the degree that it is possible, family therapy should be encouraged as a form of service. There does not appear to be any economic reasons to exclude family therapy in setting behavioral health policy.

Limitations

There are, of course, a number of limitations to this type of research. First, cause-and-effect relationships cannot be established; only true experimental designs can aspire to identify such relationships. Interpretations must be cautious and discuss associations and relationships. Second, direct comparisons between groups who received different forms of therapy, or received treatment from different providers, should be interpreted cautiously. There are undoubtedly pre-existing differences between persons and families who received different forms of treatment, and from different providers. However, these results are representative of the effectiveness of psychotherapy in the real world of health care systems. In addition, family therapy is associated with the lowest cost of therapy and with outcomes that are better than individual therapy alone.

One is left to wonder if these comparisons between professions are appropriate given the nature of the data. In one way they are, because the data are real data as applied in a real health care service. As such they represent at least a reasonable version of costs and outcomes as they presently exist. On the other hand, the differences in rates are small and are likely detected at least in part by the sheer number of patients studied. Some could argue that practitioners of all of the disciplines use the same number of sessions to produce the same results and that the differences found are statistically significant but not practically important. However, the present study argues that these differences are of real, practical importance since even small differences are magnified over large health care systems and across time. Ultimately, this is a judgment call that will be made by policy makers when they choose what different professions they wish to include as part of their staff or professional networks.

Design

The use of retrospective administrative data has advantages and disadvantages. The main advantage is that the data represent the real-life costs of mental health services. As a result, the findings reflect conditions that exist in the day-to-day operations of at least one large health care management system and are very likely to be generalizable to other similar health care management systems. Disadvantages exist as well. These include the difficulty of obtaining detailed socioeconomic or personal information about the subjects. As a result, the descriptions of the sample are, at best, sketchy. Other research methods such as probability sampling of program participants would yield more in-depth data, but obtaining such data is difficult. Health care management companies go to great lengths to protect the confidentiality of their subscribers. As a result, the ability of researchers, especially from outside the system (Crane & Law, 2002), to identify specific subscribers to approach for possible research participation is limited.

Sample

This project eliminated a significant number of patients who saw more than one type of professional provider. Certainly there are instances in which such collaborative care can produce outcomes as good or better than those demonstrated for folks seen by providers of only one professional type. For example, the combination of couples therapy and medication could be described as the optimal treatment for depression among women (Beach & Jones, 2002; Gilliam & Cottone, 2005).

In addition, as the characteristics of the patients who participated in the different types of therapy are not known, they cannot be directly compared. Consequently, those who participate exclusively in individual therapy, for example, may or may not be substantially different from those who participate exclusively in family therapy or those who receive mixed therapy.

Possibly, those who participate exclusively in individual therapy may experience less social support overall than those whose families are actively involved in treatment. These patients may or may not differ on other important variables, such as severity of clinical symptoms, ethnicity, income, comorbidity with other illnesses, and family status, as well.

Services and Diagnoses

The relatively small number of sessions in the first EoC may reflect CIGNA policy caps on mental health services and not be reflective of "best care" practices. This could include patients being required to pay out-of-pocket for care beyond the amount allowed by their health care plan. However, the data suggest that this is probably not the case as the range of the number of sessions in the first EoC was large.

SUMMARY AND CONCLUSIONS

The present study provides a comprehensive description of how the different mental health professions provide services in a large managed behavioral health care system. It demonstrates that all disciplines provide successful and cost-effective treatments. The data also show that family therapy is a more cost-effective treatment modality than individual psychotherapy and should be included as a covered service in behavioral health plans. Additionally, health care managers should also consider employing the full range of licensed mental health providers to provide covered mental health services. Finally, given the large and representative nature of the data set, it is likely that results from this study can be generalized to other health care systems.

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