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Cost-Effectiveness of Psychotherapy and Dementia: A Comparison by
Treatment Modality and Healthcare Provider Type

Megan Ruth Story

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

Masters of Science

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ABSTRACT

Cost-Effectiveness of Psychotherapy and Dementia: A Comparison by Treatment Modality and Healthcare Provider Type

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Masters of Science

Dementia is a chronic disorder that affects approximately 40 million individuals throughout the globe. This study provides a preliminary description of psychotherapeutic treatment for the management of dementia. This study compares treatment outcomes by both modality (individual, family, and mixed) and provider type. Results found that therapy is a low-cost treatment, however, it is not being often used for people with dementia, or their family members. Participants (n=327) include individuals with ages ranging from 46-95 (M=70.52, SD=12.16). Females made up 57.5% (n=188), while males made up 42.5% (n=139) of the sample. Descriptive statistics found that the number of sessions ranged from 1-62 (M=3.17, SD=5.24). The average cost of care for one episode of care was \$155.21 (SD=276.16), and estimated cost effectiveness was 207.31 (490.84). There were significant differences found when comparing modality type, with mixed therapy being significantly different than both family and individual therapy across all treatment outcomes. The only significant difference in groups of provider types was in the number of sessions in an episode of care. Findings suggest that although talk therapy treatment has been shown to be cost-effective treatment, it is not used often in treatment.

Keywords: dementia, cost-effectiveness, psychotherapy, treatment outcomes, family therapy

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Introduction

Dementia is a chronic disorder that impacts not only the people diagnosed but many others as well. Individuals, their families, the healthcare system, and society are affected by the diagnosis. The consequences are financial, mental, emotional, and physical. Dementia is characterized in The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) by multiple cognitive deficits that mainly appear as memory impairment (American Psychiatric Association, 2000). Diagnostic criteria include aphasia (language deterioration), apraxia (lack of ability in motor activities and comprehension), agnosia (failure to identify objects), and a decline in executive functioning (American Psychiatric Association, 2000).

The prevalence of the diagnosis in the United States is 13.9% in individuals over the age of 71 (Plassman et al., 2007). The global burden 's hard to assess. It is estimated that 26.6 million individuals were living with dementia throughout the world in 2006 (Brookmeyer, Johnson, Ziegler-Graham, & Arrighi, 2007). As many as 1 in 85 people worldwide will live with the disease by the year 2050 (Brookmeyer et al., 2007). Considering the current population, this is around 82,000,000 people that could be diagnosed. That is a significant amount of individuals and families affected by the chronic illness.

The effects of dementia include a broad range of emotional, mental, relational, and financial aspects. The focus is not specifically on cognitive problems but includes relational and economic outcomes for families. The yearly cost in the United States alone is around \$200 billion dollars (Hurd, Martorell, Delavande, Mullen, & Langa, 2013). Globally the cost is as high as \$600 billion per year (Prince et al., 2013). This prolonged disorder is progressive making it difficult for couples to adjust to (Auclair, Epstein, & Mittelman, 2009). Caring for family members adds burden in health, finances, and emotional areas (Logsdon, 2008).

These factors make it necessary to understand health service utilization especially concerning psychotherapy for the management of dementia. Pharmacological treatments are considered the primary care offered for individuals with dementia. Research available on other treatments is limited and hard to decipher (Martin Knapp, Iemmi, & Romeo, 2013). The increasing amount of people that have dementia makes it necessary to find the best possible interventions for those individuals and their families (Lombard, Haddock, Talcott, & Reynes, 1998). One study found that relational psychotherapy may be an effective form of treatment (Auclair et al., 2009), however, added research is needed to clarify these findings. This study will attempt to provide a picture for what psychotherapeutic treatment of dementia looks like concerning the cost-effectiveness of the management of dementia.

Literature Review

Definition

Dementia is a complicated diagnosis. Each type has its unique etiology and pathology. The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) defines dementia to include multiple cognitive deficits that involve memory decline (American Psychiatric Association, 2000). All types of dementia are incurable. Memory impairment is necessary for diagnosis. It includes a combination of aphasia, apraxia, agnosia, and disturbances in executive functioning. Individuals may experience symptoms from more than one classification of dementia. This mixed pathology adds to the complication of diagnosis.

According to the DSM-IV emotional symptoms are not directly related to diagnosing dementia. However, suicidal behavior may occur especially in the early stages of diagnosis. The diagnosis criteria include a specifier of depressed mood (American Psychiatric Association, 2000). The most common psychological indication associated with dementia is apathy

(Shimabukuro, Awata, & Matsuoka, 2005). Although emotional signs are not required to diagnose dementia, they are present for many individuals with the disease.

This research uses the diagnostic codes from the DSM-IV. The codes include all codes for Alzheimer's disease including: Early Onset, Uncomplicated (290.10), Early Onset with Delirium (290.11), Early Onset with Delusions (290.12), Early Onset with Depressed Mood (290.13), Late Onset, Uncomplicated (290.0), Late-Onset with Delirium (290.3), Late-Onset with Delusions (290.2), Late-Onset with Depressed Mood (290.21), and on axis three (331.00). Vascular Dementia was included as well with Vascular Dementia, Uncomplicated (290.40), Vascular Dementia with Delirium (290.41), Vascular Dementia with Delusions (290.42), and Vascular Dementia with Depressed Mood (290.43). Other diagnoses include Dementia due to Pick's Disease (290.10), Dementia due to Creutzfeldt-Jakob Disease (290.10), Substance-Induced Persisting Dementia (291.2 and 292.82), Dementia Due to Multiple Etiologies (mixed dementia), and Dementia not otherwise specified (294.8) (American Psychiatric Association, 2000).

Types of dementia. Alzheimer's disease is the most common form of dementia. It affects 7-10% of individuals over the age of 65 and nearly 40% of individuals over the age of 80 (Farlow, Small, Quarg, & Krause, 2005). Alzheimer's disease is an irreversible neurodegenerative disease of the brain. Individuals experience a decrease in memory and ability to think. (American Psychiatric Association, 2000; Farlow et al., 2005). There is not a known cure, and progression is not the same in all patients. It was the seventh leading cause of death in 2006 in the United States (Wimo & Prince, 2010).

Vascular dementia is considered to be post-stroke dementia and is the second most common form (Grinberg & Heinsen, 2010). It shares many risk factors with Alzheimer's disease.

The mortality rate for Vascular Dementia is higher than Alzheimer's disease. The cognitive decline is slower than Alzheimer's disease as well (Korczyn, Vakhapova, & Grinberg, 2012). Another kind of dementia similar to both vascular dementia and Alzheimer's disease is dementia with Lewy bodies. Visual hallucinations, muscle rigidity, and tremors often happen, as well as a loss of alertness in dementia with Lewy bodies. The severity of these symptoms tends to fluctuate daily (Wimo & Prince, 2010). Each of these forms of dementia includes a decline in intellectual skill although there are slight differences in pathology.

United States. Dementia is a diagnosis that is affecting a large number of elderly people in the United States. The amount of adults reaching the age of 65 increased 36% between 1980 and 2000 (Rizzo & Rowe, 2006). As the baby boom generation has begun to age, there has been a rise in the number of elderly people. Individuals are more prone to develop Dementia, starting at age 65 (Alzheimer's Association, 2013). This contributes to the surge of people who are more likely to become diagnosed with dementia.

The exact number of people experiencing the effects of dementia is unknown. Prevalence rates reported in the United States are significant. In 2007 the national prevalence of dementia was around 14%. Occurrence rates for males are estimated at 11%, and women had an estimated rate of 16% (Plassman et al., 2007). These incident rates mean around 3,500,000 individuals in the United States were expected to have dementia (Plassman et al., 2007). There is difficulty in evaluating the future rates. It is anticipated that by 2050, 1 in 85 people will live with Alzheimer's disease in the US (Brookmeyer et al., 2007).

The rising prevalence and cost of treatment in the management of dementia is a growing concern in the United States and throughout the world (Delavande, Hurd, Martorell, & Langa, 2013). Many individuals with dementia have other health problems as well making it hard

directly to pinpoint the cost (Hurd et al., 2013). The current projected average yearly cost is around \$56,000 per individual diagnosed with dementia. Caregiving value for replacement cost and forgone wages is estimated around \$44,000. The combined cost of care purchased and caregiving value was around \$64,000 (Hurd et al., 2013). The combination suggests that the cost in the United States was anywhere from \$150 to \$215 billion per year. Current costs of treatment are adding a substantial economic burden to the United States, making it necessary to examine how this can be managed.

Global. The increased prevalence is not only occurring in the United States but globally as well. It is estimated that 44 million individuals throughout the globe live with dementia (Prince et al., 2013; Rocca et al., 2011). The occurrence rates in China are around 4% (Zhou et al., 2006). India has a similar prevalence rate of 3.77% in individuals at least 55 years old (Mathuranath et al., 2010). Although the percentages in these countries seem small, when each country's population is around 1 billion people, that is a substantial number of individuals living with dementia globally.

Occurrence rates increase with age. In China, individuals over the age of 80 had the highest prevalence rates of 12% (Zhou et al., 2006). India also had higher rates for people over the age of 65, than those younger (Mathuranath et al., 2010). It is estimated that 1.2% of the global population will be living with dementia by 2050 (Rocca et al., 2011). According to this estimation, as many as 100 million people could receive a dementia diagnosis in the future (Brookmeyer et al., 2007; Prince et al., 2013). That is a significant number of the global and elderly population and their families that will be affected by the disease.

The high prevalence throughout the globe has an impact on the current and future cost of care. The cost of treatment for dementia has a large effect on society (Delavande et al., 2013;

Hurd et al., 2013; Knapp, 2006; Knapp et al., 2013). In 2003, the global cost of care for dementia was \$156 billion (Wimo, Jonsson & Winblad, 2006), and has now risen to \$604 billion a year (Prince et al., 2013). The cost creates a substantial financial burden for families (Leicht et al., 2013). The reasons for such an increase is not clear, making it even more important to understand what can be done to lessen the burden on society and individuals.

Effects of Dementia

Individual. Many of the common signs of dementia are physical and cognitive. There are also psychological symptoms that are correlated with the diagnosis. Apathy and depression are the main emotional symptoms (Meiland, Kat, van Tilburg, Jonker, & Droes, 2005). Delusions, anxiety, irritability, dysphoria, hallucinations, and aggression are also common (Shimabukuro et al., 2005). Apathy was found to be the most frequent change in behavior, with euphoria being the least prevalent in individuals diagnosed (Shimabukuro et al., 2005). These symptoms are likely to cause distress in patients and their family caretakers. This suffering makes it necessary to treat these symptoms along with the physical and mental symptoms of dementia and to aid caregivers facing these symptoms in their loved ones.

Families. Research has shown that there is an effect on the quality of relationships as a result of being diagnosed with dementia (Epstein, Auclair, & Mittelman, 2007). The symptoms interfere with the couple's relationship which causes destabilization for both partners. Couples and families must adapt roles, rules and identity within the household. The changes make it necessary for members of the family to adjust to cope with the instability of the changes (Epstein et al., 2007). Studies have shown that counseling with couples where one member has Alzheimer's disease is an effective form of treatment for the dyad (Auclair et al., 2009; Epstein et al., 2007). The studies suggest that family psychotherapy treatment may affect the overall

health and care of dementia patients and their relationships in a positive way (Auclair et al., 2009; Epstein et al., 2007).

Burden of care. Along with the relational effect of dementia, there is a weight of care for individual caregivers. Much of the care that patients receive is given by family members (Black et al. 2013; Hallberg et. al, 2013). In the Netherlands around 66% of individuals with dementia are cared for by relatives at home (Meiland et al., 2005). This includes around 10 million individuals that provide more than 12.5 billion hours of unpaid care (Wimo & Prince, 2010). The estimation of cost for this informal care is at least \$250 billion per year in the United States (Jones, Edwards, & Hounsome, 2012).

The immense strain that this care causes is associated with high levels of depression and emotional stress in the caregivers (Alzheimer's Association, 2010; Springate & Tremont, 2012). Caregivers are likely to experience depression, apathy, agitation, and irritability as distressing emotional symptoms related to taking care of a loved one (Meiland et al., 2005). The caregivers in these situations are more likely (compared to individuals of the same age who are not caregivers) to report their health as poor or fair (Alzheimer's Association, 2010). Their reports included adverse consequences to physical and emotional health (Acton & Kang, 2001). Familial caregiving creates an individual burden for individuals caring for family members.

Psychotherapy Treatments in the Management of Dementia

Type of treatment. The prevalence and occurrence rates demonstrate the need to understand treatments available to manage the symptoms of dementia. Care for individuals often centers on medical and residential care for daily living issues (Black et al., 2013; Goldfeld, Hamel, & Mitchell, 2013). The severity of symptoms often dictates treatment choices, making it hard to compare treatment outcomes among individuals with different degrees of severity

(Brookmeyer et al., 2007). These factors contribute to the lack of information on effective treatment. The focus on medical interventions continues to leave a hole in psychotherapy treatment of symptoms.

Research focusing on psychotherapeutic interventions in the management of symptoms of dementia concentrates on easing psychiatric symptoms of both individuals and their caregivers. Psychotherapy interventions often emphasize the change in the reactions of caregivers to the individuals that they care for. This is often done through group sessions, individual, or family therapy sessions (Acton & Kang, 2001). Other research investigated how psychosocial treatments impact the psychological disturbances that come as symptoms of dementia (O’Conner, Ames, Gardner, & King, 2009). Studies often include participants that have a comorbid diagnosis of depression (Scholey & Woods, 2003). These symptoms are commonly treated with psychotherapy interventions. The burden of care, relational impact, and emotional impact to individuals suggest that psychotherapy could be an effective intervention for both people with dementia and their caregivers.

There are a variety of familial interventions intended for individuals with chronic illness. Campbell & Patterson (1995) outlined effectiveness in family interventions and physical illness. They found that familial interventions had a tendency towards the four areas: family therapy, family psychoeducation, family information and support programs, and direct delivery of services to the family, with the majority focusing on familial psychoeducation. The research reported evidence that familial interventions reduce burden and depression for caregivers (Campbell & Patterson, 1995).

More recent studies support the findings of Campbell & Patterson. Various types of familial interventions have been successful in assisting in managing symptoms of dementia

alongside medical treatment. These include a multidisciplinary approach, couple-oriented interventions, narrative interventions, and emotionally focused therapy (Chawla & Kafescioglu, 2012; Martire, 2013; Scherrer, Ingersoll-dayton, & Spencer, 2014; Wolfs, Kessels, Dirksen, Severens, & Verhey, 2008). Research focusing on systemic intervention and dementia suggested future research and interventions to be systemic to create a greater impact of change on family members as well (Benbow, Sharman, Koopmans, & Rosness, 2014). Family therapists can play a significant role in management physical health problems and reduce the burden on family members by using family therapy (Benbow et al., 2014; Campbell & Patterson, 1995).

Interventions. Two different psychotherapeutic paths are common for clinicians to take when treating clients with various mental health diagnoses. Individual therapy may be used with the diagnosed patient (Ridder, Stige, Gunnhild, & Gold, 2013; Zetteler, 2008). Therapists that are trained systemically often choose to use family therapy, with the diagnosed patient and their family members (Zarit & Femia, 1987). Research done up to this point in regards to other diagnoses show that family therapy is the most cost-effective form of therapeutic intervention available (Crane, 2007). This study will explore which modality is cost-effective with a diagnosis of dementia.

Providers

The types of providers that are used in this study include Medical Doctors (MD), Marriage and Family Therapists (MFT), Masters of Social Workers (MSW), Licensed Professional Counselors (LPC), Psychologists (PSY), and Registered Nurses (RN). This study will compare biomedically trained providers (MD and RN) with psychotherapy-trained providers (MFT, MSW, LPC, and PSY). Both groups of providers used psychotherapeutic interventions. There has not been any research comparing providers of psychotherapeutic interventions with

dementia patients and their families. This study provides preliminary information on providing cost-effective care using psychotherapeutic intervention.

One study found that nurses give the majority of care concerning individuals with this population (Hallberg et al., 2013). A meta-analysis suggested that much of the psychotherapeutic interventions provided by nurses uses Cognitive Behavioral Therapy (Correia Sampaio, da Cruz Sequeira, & Lluch Canut, 2015). Nurses offer competent psychotherapeutic interventions, but that there is a need for research to understand cost effectiveness (Correia Sampaio et al., 2015). There is, however, a significant gap in research in which MDs and RNs use psychotherapeutic interventions in the treatment of dementia.

A study regarding Social Workers has found that they provide cost-effective care for elderly individuals with dementia (Rizzo & Rowe, 2006). The study suggests that overall social workers are good providers of services to the aging population. However, this research does not consider psychotherapy treatment. The individual research available in regards to the different provider types makes it difficult to compare treatments across them.

The current research is focused on medical interventions done in the treatment of dementia with nurses being the primary providers of that service (Hallberg et al., 2013). Because there are so many unknown variables, there is a need to understand more about which provider types are most widely used when giving psychotherapy care for individuals with dementia. There is a lack of information in who is providing the majority of services to individuals diagnosed with dementia and their families. There would be value in understanding the effectiveness of psychotherapeutic interventions that are currently being given.

When considering cost effectiveness, there is evidence to suggest that psychotherapy could be a cost-effective option for the management of dementia. Studies conducted regarding

family therapy have found it to be a cost-effective form of treatment, and it contributes to less use of health care services (Crane, 2007; Crane, 2008). However, these studies did not focus specifically on dementia. It is unclear the cost effectiveness of social workers using psychotherapeutic treatments. It is also difficult for social work providers to receive reimbursement for all services delivered (Rizzo & Rowe, 2006). The current studies give valuable information, but there is a need for added research to understand the effectiveness of all providers who use psychotherapy to manage symptoms of dementia.

Cost-Effectiveness

Understanding the profitability of any mental health care treatment is becoming more important because of the limited monetary resources available. This knowledge is especially vital with the mounting population of those in need of treatment for the symptoms of dementia (Lombard, Keith Haddock, Wayne Talcott, & Reynes, 1998). There has long been an acknowledged need to use treatments that are clinically useful in both outcomes and cost. Other aspects of care, like patient desires and accessibility, are also valuable to consider (Lombard et al., 1998). Pharmacological treatment for the management of dementia has been shown efficient and cost-effective. However, the limited research in regards to non-pharmacological treatments is hard to decipher (Knapp et al., 2013; van de Glind et al., 2013) There is a need for added research about cost effectiveness in treating the symptoms of dementia non-pharmacologically (Knapp et al., 2013).

It is challenging to evaluate psychotherapy interventions and cost-effectiveness precisely. The research in this area is limited especially concerning the management of dementia (Abbass & Katzman, 2013; Alves et al., 2013; Barnett, Lewis, Blackwell, & Taylor, 2014). Randomized controlled trials are the highest standard used to assess the efficacy of psychotherapeutic

interventions. Studies of this type are challenging to produce (Alves et al., 2013). The need for a control group makes randomized control trials difficult. All individuals deserve the highest quality of care, and a group that does not receive care would be considered unethical practice. The lack of control groups makes it hard to assess psychotherapeutic interventions accurately in regards to dementia.

Although there isn't much understanding of psychotherapeutic interventions of dementia, it may be a cost-effective form of treatment for the management of symptoms. Psychotherapy has been proven to be a cost-effective treatment for a large variety of other diagnoses (Abbass & Katzman, 2013; Crane & Payne, 2011). There is an association with psychotherapeutic interventions and a decrease in overall health care usage (Crane, 2007). Timely detection of dementia gives improved cost-effectiveness of treatment with potential savings estimated at \$11,000 in cost per patient (Barnett et al., 2014). Further research of this type concerning dementia may give providers and policyholders the opportunity to balance the cost of treatment with the benefits received by the individual and their family (Alves et al., 2013).

In the study of cost-effectiveness, there is a need to understand what specifically is used to measure treatment. Past research has used treatment outcomes to measure cost effectiveness. The measure of the cost-effectiveness formula (1^{st} EoC average cost + (1^{st} EoC average cost * readmission rate)), recidivism, dropout rate, and total cost of care have been used as treatment outcomes (Crane, 2008, Crane & Payne, 2011). This study will include the cost effective formula, return to care, dropout rate, the total cost of care, and length of treatment as measures of cost-effectiveness. The growing pervasiveness of dementia shows the urgent need to develop cost-effective approaches for symptoms of dementia. Both patients and their familial caregivers would benefit from this knowledge (Blom, Bosmans, Cuijpers, Zarit, & Pot, 2013).

Dropout. Dropout is defined in both individual therapy and family therapy as a client never returning for treatment after one session. Mixed therapy dropout is defined as a client never returning after two sessions (Payne & Crane, 2011). Clients who leave therapy after a single session may be seen as wasted resources (Masi, Miller, & Olsen, 2003) even though it is a common occurrence.

There are many different contributing factors for individuals to dropout of therapy. One study concluded that there wasn't a significant difference in dropout rates among the various modalities of therapy (Masi et al., 2003). Another study indicated that MFTs have the lowest dropout rates when compared to other providers (Hamilton, Moore, Crane, & Payne, 2011). It was concluded that individual therapy had a lower dropout rate than those treated with family or mixed therapy (Hamilton et al., 2011). Dropout is an important aspect of understanding cost effective treatment, and the current literature gives mixed results. This study will address dropout particular to the psychotherapeutic treatment of dementia.

Return to care. Return to care is defined as the same individual coming back to therapy with the same provider and same diagnosis for the second episode of care (Crane & Payne, 2011). Using this as a measure of cost-effectiveness gives an accurate picture of the cost of services for different methods of treatment (Crane et al., 2013). It allows for comparison between modalities, license types, and providers (Crane & Christensen, 2012; Crane et al., 2013). The comparison offers clarity concerning which kind of treatment provides the highest benefit for the lowest cost. In a study comparing individual, family, and mixed therapy, family therapy was shown to have the lowest return to care rate (Crane & Christenson, 2012). However, there hasn't been any research of this type involving individuals with dementia. Because of its validity,

return to care will be used in this study as a measure of cost-effectiveness to compare different groups of providers and modalities.

Current Study

The current study will attempt to fill the gap in the literature concerning dementia and psychotherapy treatments, especially concerning the cost of care. Crane and Payne examined the cost of psychotherapy in a managed setting (2011). The results from the sample of 5,236,255 cases found that the average number of sessions for an episode of care was 7, with 15% of participants coming back for the second episode of care. The cost of treatment had an average of \$392.18 and an average cost-effectiveness of 340.05. There is a lack of data of this kind especially concerning the elderly population diagnosed with dementia. This study will provide preliminary information to understand how dementia treatment compares to psychotherapy treatment for all diagnoses.

Research Questions

1. What are the average number of sessions, total cost, and cost-effectiveness in an episode of care for the management of dementia using psychotherapeutic treatments?
2. What are the differences in treatment outcomes (total cost, the number of sessions, cost effectiveness, dropout, and return to care) when comparing modality of care (individual, family, or mixed therapy) when treating the symptoms of dementia using psychotherapy?
3. What are the differences in treatment outcomes for dementia, when comparing psychotherapeutic treatments given by providers comparing bio-medical trained providers (MD & RN) and psychotherapy-trained providers (MFT, MSW, PC, & PSY)?

Method

Design

The present study is a retrospective study using administrative data from Cigna, a large healthcare insurance provider in the United States. There is no identifying information for the participants, which allows, through the Health Insurance Portability and Accountability Act of 1996 (HIPAA), the data to be used in a retrospective statistical analysis. The data available for each participant are age, gender, primary and secondary DSM-IV diagnosis, current procedural terminology (CPT) code (family or individual therapy), treatment provider's license type, the number of therapy session per participant, and dollar amount of each claim. The dataset used for this study is a subset of a larger dataset of participants between the ages of 46-95 with a diagnosis of Dementia (DSM-IV 331.0, 290.10, 290.11, 290.12, 290.13, 290.3, 290.2, 290.21, 290.0, 290.40, 290.41, 290.42, 290.43, 291.2, 292.82, & 294.8). The full explanation of the larger data set and all cleaning procedures can be found in an article by Crane and Payne (2011).

Sample

Participants ($n=327$) include individuals with a primary diagnosis of any dementia according to the DSM-IV, who received outpatient psychotherapy treatment paid by Cigna during 2001-2006 for individual or family therapy. The ages of participants range from 46-95 ($M=70.52$, $SD=12.16$). Individuals younger than 46 years old were removed from the data set to make a more precisely defined sample. Females made up 57.5% ($n=188$), while males made up 42.5% ($n=139$) of the sample. All participants were seen in outpatient clinics. They represent all states of the United States, except Hawaii.

Providers

This study includes six different provider types: Medical Doctors (MD), Marriage and Family Therapists (MFT), Masters of Social Workers (MSW), Licensed Professional Counselors (LPC), Psychologists (PSY), and Advanced Practice Nurses (RN). These providers were chosen because they are independently licensed health care providers and are nationally recognized as such (Crane & Payne, 2011). If a provider had multiple license types, the provider type used in the study was the license type identified as “primary” on the first claim processed. This study will group providers by training type. Medically trained psychotherapy providers (MD & RN) will be considered biomedically trained, while providers who are specifically trained as psychotherapy providers (LPC, MFT, MSW, & PSY) will be in the talk therapy group.

Definition of Terms

Episode of care. Cigna considers an episode of care (EoC) as a continuous series of services for one participant. The episode of care ends when a participant has had no psychotherapy claims for 90 days or more. The number of sessions in the first episode of care ranged from 1 to 62 (M=3.17, SD=5.24).

Return to care. For this study, a return to care is defined as a patient returning to therapy (after at least a 90-day break) for an additional episode of care with the same provider type (Crane & Payne, 2011).

Total cost. Total cost is defined as the total dollar amount paid by Cigna for all therapy services during the episode of care.

Cost-effectiveness. The formula for cost-effectiveness is: Estimated cost-effectiveness = 1st EoC average cost + (1st EoC average cost * return to care- admission rate) (Crane, 2008;

Crane & Payne, 2011; Moore et al., 2011). This formula compares different types of therapy treatments and provider types based on treatment cost and readmission rate.

Dropout. Drop out is defined as a participant attending only one session of therapy of any modality (Hamilton, Moore, Crane & Payne, 2011).

Family therapy. Family therapy in this study is defined by Current Procedural Terminology (CPT) code of 90847, “Family psychotherapy (conjoint psychotherapy) (with patient present)” (American Medical Association, 2006, p. 278).

Individual therapy. In this study individual therapy is defined by a Current Procedural Terminology (CPT) code of 90806, “an insight oriented, behavior modifying, and/or supportive treatment in an office or outpatient facility, approximately 25 to 50 minutes face-to-face with the patient” (American Medical Association, 2006, p. 277).

Mixed therapy. In this study, mixed therapy is defined as an episode of care including both sessions of family therapy and sessions of individual therapy. Participants who were referred from one license type to another are excluded from this study; because of this the definitions of mixed therapy refers to the same provider, giving treatment both relationally and individually throughout the episode of care.

Results

The first question considered the average number of sessions, total cost, and cost effectiveness in treating the management of dementia. Descriptive statistics were run to determine the total cost, cost effectiveness, and length of treatment. The number of sessions ranged from 1-62 (M=3.17, SD =5.24). The average cost of treatment for an episode of care was \$155.21 (SD = 276.16). The mean cost-effectiveness of treatment was 207.31 (SD= 490.84).

Table 1 here

The second question asked, “What are the differences in treatment outcomes (number of sessions, total cost, cost effectiveness, dropout and return to care) when comparing modality (individual, family, or mixed therapy) when treating the symptoms of dementia using psychotherapy?” ANOVA was run for the total cost, number of sessions, and cost effectiveness. Results of one-way ANOVA indicated a significant difference between modalities and the total number of sessions provided [$F(2, 324) = 9.754, p < .001, \eta = 254.141$]. Tukey posthoc analysis did not demonstrate a significant difference between individual and family therapy. However, there was a difference in average total sessions between mixed therapy and both individual sessions ($M = 5.01$) and family sessions ($M = 5.86$).

In regards to total dollars spent, results indicated statistically significant differences in total dollars between modalities [$F(2, 324) = 11.111, p < .001, \eta = 797860.963$]. Tukey posthoc analysis showed a significant mean difference between mixed and individual sessions ($M = 291.37$). As well as a difference in mixed and family sessions ($M = 324.55$). There was no significant difference between individual and family sessions. Cost effectiveness was also shown to have statistically significant differences between modality [$F(2, 324) = 10.296, p < .001, \eta = 2346804.711$]. Post-hoc analysis showed no significant difference between individual and family sessions. Again, results showed a statistical difference between the average cost effectiveness of mixed therapy between both individual ($M = 491.40$) and family sessions ($M = 560.40$). In all cases, mixed therapy had a significant difference in average sessions, cost, and cost-effectiveness when compared to individual and family therapy.

Table 2 Here

Concerning the outcomes of dropout and return to care, logistical regression was run. There was a significant difference in dropout rates between family and mixed therapy, $B = -2.10$,

$SE = .617, p = .001, \beta = .122$. These results indicate that individuals who receive family therapy modality are 87.8% times less likely to drop out of therapy. There was not a significant difference found between individual and family therapy, $B = -.503, SE = .278, p = .071, \beta = .605$. Return to care also had a significant difference between family therapy and mixed therapy, $B = 2.72, SE = .70, p = .00, \beta = 15.20$. The results indicate that individuals who received mixed therapy were 14.2 times more likely to return to care than those receiving family therapy.

The third question stated, “What are the differences in treatment outcomes for dementia when comparing psychotherapeutic treatments given by providers comparing bio-medical trained providers (MD & RN) and psychotherapy-trained providers (MFT, MSW, PC, & PSY)?” Analysis of Variance (ANOVA) was used to understand the relationships between the continuous dependent variables of average total sessions, cost, and cost-effectiveness.

ANOVA showed significant differences between talk therapy providers and biomedically trained providers and total sessions [$F(1, 247) = 4.995, p = .026, \eta = 118.094$]. Talk therapy providers had mean total sessions of 3.43 ($SD = 5.57$), while biomedically trained therapy providers had mean total sessions of 1.72 ($SD = 1.27$).

Average total dollars were found to have no significant differences between provider types [$F(1, 247) = 3.097, p = .080, \eta = 343746.958$]. Talk therapy providers had a higher mean total dollars ($M = 166.14, SD = 302.28$), while biomedically trained therapy providers had a lower average total dollars ($M = 93.10, SD = 70.94$). There was no significant difference between talk and biomedical providers on cost-effectiveness, [$F(1, 247) = 2.636, p = .106, \eta = 818506.592$]. Talk therapy providers had a higher cost effectiveness ($M = 223.91, SD = 540.79$), while biomedical providers had a lower cost-effectiveness ($M = 103.69, SD = 99.80$).

Table 3 Here

Binary logistic regression was used to compare biomedical providers with talk therapy providers on dropout and return to care. There was not a significant difference in biomedical and talk therapy providers in regards to dropout, $B = -.624$, $SE = .326$, $p = .056$, $\beta = .536$. There was no significant difference between provider types in return to care, $B = -.654$, $SE = .561$, $p = .244$, $\beta = .520$

Table 4 Here

Discussion

These results provide a beginning picture of the psychotherapeutic treatment of dementia patients in the healthcare system. This study compared treatment outcomes by both modality (individual, family, and mixed) and provider type. Results found that therapy is a low-cost treatment. The increase in the number of individuals with dementia creates an urgent need to understand cost effective approaches to treatment (Blom et al., 2013). However, psychotherapy not being used for people with dementia, or their family members. Findings suggest that although psychotherapy treatment has a low cost, especially compared to the overall cost of treatment, it is not often used for dementia patients (Crane & Payne, 2011).

The first research question considered total cost and cost effectiveness. Results demonstrate psychotherapy as a relatively inexpensive treatment option to manage the symptoms of dementia. The average cost for an episode of care is \$194.12. The results are comparable to other diagnoses according to Crane and Christenson (2012). The chronic nature of this diagnosis may contribute to the low cost and session number. This may suggest that therapy could be a beneficial option for individuals diagnosed, especially in the early stages where many adjustments are required in family life. When considering the total cost of all care provided to

individuals diagnosed with dementia, therapeutic treatments could be added to assist people with emotional symptoms connected to diagnosis.

The results showed that family and individual therapy are comparable modalities of therapy and have relatively low cost of treatment. Mixed therapy has a significantly higher cost and cost effectiveness. The increased costs of mixed therapy may be a result of the fact that the definition suggests that at least one session of each family and individual session must be attended to be considered mixed therapy. Because of this, at least two sessions occur before dropout is possible, whereas individual and family therapy only require one session for dropout. This definition may increase overall cost and attendance.

Another possible reason for the higher cost for mixed therapy is the many different things that a therapist must consider during treatment. The complexity of treatment may add time and cost to the episode of care. However, the cost for therapy, even considering mixed therapy, it is a low-cost option for treating the effects of dementia.

The knowledge of cost-effectiveness is essential information to have considering the concern for the financial burden of the diagnosis. The cost of treatment, especially psychotherapy treatment is a factor in treatment options. High cost could be considered a barrier to treatment for some individuals with dementia (Benbow et al., 2014). There may be concern that providing therapy is an expensive form of treatment especially if family members participate.

A significant focus of research is focused on caregivers and the burdens associated with care (Blom et al., 2013; Elvish, Lever, Johnstone, Cawley, & Keady, 2013; Jones et al., 2012). The results of this study indicated around 70% of the psychotherapy treatment for dementia was individual treatment while only 30% included family members. When considering that this data

subset came from a larger data set of around 5,000,000 with only 327 cases were dementia, that is few families receiving therapy treatment. The low rate of family therapy suggests that although caregivers are a population that is in need of services, the majority of services currently focuses solely on the patient with dementia. A randomized control trial that included patients and their caregivers found that including caregivers in treatment had positive effects on the burden of caregivers. The group that did not receive family treatment had in increased level of burden (Ostwald, Hepburn, Caron, Burns, & Mantell, 1999). The results show that family therapy treatment could be both an effective and cost effective form of treatment to assist families.

Although this research provides a beginning look at dementia within a psychotherapeutic framework, results suggest that family therapy could provide cost-effective care for individuals with dementia and their families. Research on family interventions has shown reduced caregiving burden including less depression and feelings of responsibility (Benbow et al., 2014). Past research is clear that interventions that assist caregivers early on in the process are beneficial (Blom et al., 2013).

Combined with the research shown and findings from this study it is clear that both individual and family therapy are cost-effective treatment options. Family therapy could provide needed resources for families and people who have been diagnosed with dementia. Family therapy could benefit in helping families accept other treatment, defining of roles within the family with the change, facilitate support among family members, and assist in negotiating treatment plans (Benbow et al., 2014).

The current care for dementia is separated by medical and mental health care providers. The need for connecting care among provider for this group is evident. It will be important to understand the differences between medical and psychological health care to understand

interventions for long-term illnesses such as dementia (Benbow et al., 2014). The results show that there was no significant difference among the groups of provider types on treatment outcomes. Both biomedical trained and psychotherapy-trained providers could offer cost-effective services for individuals with dementia and their family members.

Limitations

This study suggests that therapy may be a useful option in managing the symptoms of dementia for individuals. As well as benefit their caregivers. However, there were limitations with the study. Those limitations include a lack of information and the retrospective nature of the study. Each factor limits our ability to provide a full picture of psychotherapeutic intervention for the symptoms of dementia.

This study was a retrospective study of data collected from Cigna, a large healthcare organization. The retrospective nature of the study limited the researchers' information that could have been helpful in this study. Information on theory used in therapy, reasons for leaving treatment or returning to care, and the participation level of caregivers in family therapy all would have added to understanding the best treatment options for dementia. The lack of ability to gain additional information limited the ability of researchers to provide a full understanding of outcomes.

Future Research

There is a need for more research investigating the effectiveness along with cost effectiveness of treatment with individuals with dementia. The future of this would be helpful to assess caregiver response after therapy to understand outcomes. Assessing Caregiver burden and health care use would be beneficial. Future research would be valuable in regards to the

effectiveness of family interventions on the system as whole, as well as further investigation of the relationship between family interventions and the healthcare system (Benbow et al., 2014).

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Table 1

Descriptive Information

	Overall n=327 (%)
Modality	
Individual Therapy	229 (70%)
Family Therapy	80 (24.5%)
Mixed Therapy	18 (5.5%)
Provider Types	
Biomedical	54 (16.5%)
Talk Therapy	195 (59.6%)
Missing	78 (23.9%)
Total Average Cost	\$155.21 (SD = 276.16)
Number of Sessions	3.17 (SD = 5.24)
Dropout	59.3%
Return for 2nd EoC	11.3%
Age	70.52 (SD = 12.16)

Table 2

Average Sessions, Cost, Cost Effectiveness, Dropout and Return to Care Rate

	M Total Sessions (SD)	\$ M Total Cost (SD)	M Cost Effectiveness (SD)	Dropout	Return to Care
Individual	3.10 (5.49)	\$147.29 (230.29)	231.08 (402.96)	58.5%	10.9%
Family	2.15 (3.23)	\$114.11 (140.03)	128.15 (200.15)	70.0%	5.0%
Mixed	3.17 (5.24) *	\$438.66 (347.04) *	688.31 (684.76) *	22.2%	44.4%

Note. * significantly different at $p < .05$

Table 3

Average Total Session, Cost, Cost Effectiveness, Dropout, and Return to care by Provider Type

	M Total Session (SD)	M Total Cost (SD)	M Cost Effectiveness (SD)	Dropout	Return to Care
Talk Therapy	1.72 (1.27) *	\$93.10 (70.94)	103.69 (99.80)	48.9%	14.2%
Biomedical	3.43 (5.57) *	\$166.14 (302.28)	223.91 (540.79)	67.9%	7.1%

Note. * significantly different at $p < .05$

Table 4

Logistic Regression Analysis for Return to Care and Dropout

Modality	Return to Care			Dropout		
	B	SE B	β	B	SE B	β
Provider Types (Comparison group: Talk therapists)						
Biomedical Practitioners	-.654	.561	.536	-.624	.326	.520
Modality (Comparison group: Family Therapy)						
Individual	.845	.555	2.328	-.503	.278	.605
Mixed	2.72	0.699	15.17*	-2.10	.617	.122*

Note. * $p < .05$