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A Comparative Study of Family-Centered Home Based and Traditional Addiction Treatment Approaches

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A COMPARATIVE STUDY OF FAMILY-CENTERED HOME BASED AND TRADITIONAL ADDICTION TREATMENT APPROACHES

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The primary focus of this study emphasized a family-centered home based addiction treatment approach which resulted in diverse outcomes than traditional addiction treatment. A secondary focus involved quality of life (QOL) using the Multidimensional Life Quality (MILQ) instrument, which examined QOL for clients and key family members. QOL results were inconclusive in this study.

Client engagement in the treatment process was measured using a checklist adapted from DiClemente's (2003) and Connors, Donovan, and DiClemente's (2001) work on stages of change in addiction treatment. Eighty-two case records were examined for individuals that participated in a family-centered home based approach, referred to as Rehab at Home (RAH) while simultaneously participating in single or various combinations of traditional treatment modalities as well as individuals who exclusively participated in single or a combination of traditional treatment modalities.

The predictors of engagement that emerged from the study included (a) RAH, (b) family involvement, (c) treatment intensity, (d) gender, (e) use of marijuana, and (f) past alcohol and other drug treatment. The odds of engagement for clients in RAH were 6.30 times greater when compared to traditional treatment only. Results showed that females who reported using drugs other than marijuana with no previous treatment episodes had the highest probability of engagement in the treatment process. Marijuana users, regardless of gender, had the lowest probability of engagement.

A converse relationship between treatment intensity and engagement was also noted, signifying that shorter bursts of treatment over a longer period of time led to a higher probability of engagement. This study supports that RAH was significantly responsible for client engagement and provides empirical support for implementing interventions based on the chronic care model.

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I end this with a quote that has very special meaning to me personally, "*Go confidently in the direction of your dreams! Live the life you've imagined*." Thoreau. Now, let's go have some fun!!!

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CHAPTER I INTRODUCTION

Background

Addiction

A person's intent when consuming alcohol and other drugs (AOD) lies with obtaining pleasure, satisfaction, and positive benefits, noted Hammersley (2005). Peele and Grant (1999) explained that consuming alcohol joins many interpersonal activities—dining, sharing time with friends, relaxing, and celebrating. When an individual crosses the line from use to abuse it can lead to addiction. Although definitions of addiction, also referred to as substance dependency, vary depending on the perspective of a particular researcher, author, or discipline, several high profile organizations espouse similar definitions.

The American Medical Association, American Society of Addiction Medicine ([ASAM] 2001), National Institute on Drug Abuse ([NIDA] 2009), and The National Council on Alcoholism and Drug Dependence (1990) described addiction as a primary, chronic and progressive brain disease. These organizations concur that genetic, psychosocial, and environmental factors influence addictions' development and manifestations. Hallmarks of addiction to AOD include: craving, compulsive use, using despite harmful consequences, and distortions in thinking, particularly denial. As addiction progresses, individuals build a denial system through self-deception, justification, and rationalization to fortify the belief that they do not have addiction-related problems (Wallace, 2006).

Families' Responses to Addiction

Although family members may not live in a state of denial similar to the addict, they too may experience distorted thinking. Family members develop intricate and convoluted

psychological and behavioral ways to control the addict. McIntyre (2004) explained "subtle and not so subtle, covert and overt interactions, codependency and addictive family systems are created" (p. 237). The family strives to keep a sense of equilibrium or status quo by altering behaviors and beliefs, thereby accommodating the individual. Brown and Lewis (1999) noted that the family system becomes increasingly rigid as family members try to control increasingly higher levels of distress. In the midst of severely damaged family functioning, disintegration of the family system results.

Family members may unwittingly participate in assisting addictive behaviors by protecting their loved one from negative consequences. Professionals in the addiction field report that a classic example are parents hiring lawyers to "beat" a drug charge only to have their son or daughter continue using AOD. Though addiction may drive family chaos, in turn it can also serve to trigger the substance abuser to consume more AOD in order to escape the turmoil, thus, vicious cycles ensue. According to Moos, Finney, and Cronkite (1990), as physical, emotional, social, and economic consequences mount, individuals and/or their families seek specialized treatment programs for assistance. Unfortunately, a significant time lag exists from the onset of abuse of AOD to an individual ultimately seeking treatment.

Conducted and sponsored by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) of the National Institutes of Health (NIH), the National Epidemiologic Survey on Alcoholism and Related Conditions is a longitudinal survey. Noted in the 2001-2002 survey, a ten-year gap exists between onset of abuse and obtaining treatment. According to the Director of the National Institute on Alcohol Abuse and Alcoholism (NIH News, 2007), this gap leads to adverse personal consequences and family

instability. Families often follow the misguided advice of waiting for the individual to "hit bottom," meanwhile over time without treatment or only sporadic treatment, AOD related problems become more complex and convoluted.

When treatment embraces the entire family system, the ten-year gap narrows and adverse family consequences and instability drastically reduced. Even though their loved one(s) presents a picture of denial, family members develop a keen awareness of the chaos, turmoil, and dysfunction caused by addiction. Because they cannot take any more of the "craziness," a family member often makes the first move to seek treatment instead of the loved one. Copello and Orford (2002) asserted knowledge generated in the last decade supports the pivotal role families play in the initiation and ongoing treatment.

Addiction Treatment

A broad array of traditional modalities exists, such as outpatient, partial hospital program, and short- and long-term residential. An AOD program (herein referred to as behavioral health program) in southeastern Pennsylvania and a part of a larger multimodality community mental health organization, offers traditional addiction treatment modalities and a recently created family-centered home based treatment approach.

The director of the behavioral health program recognized a need to offer an approach for individuals abusing AOD and their families with nested and tenacious abuse-related problems. Rehab at Home (RAH), a family-centered home based approach, commenced in 2002 in the aforementioned facility. RAH views the individual and the family as the primary client. The entire family system including spouse, partner, parent, child, or other close loved one(s), becomes the focus of treatment. This approach empowers the family

system to appropriately address addiction related problems, as a family rather than individually.

Family Involvement in Addiction Treatment

Van Wormer (2008) explained that the family is a system that is constantly dynamic. The family sets forth a rhythm that is more than just the sum of its parts. Addiction affects not only the individual, but the whole family. Actively involving family members in treatment not only benefits the individual, but allows a family to make a positive impact on sobriety (Copello, Templeton, & Velleman, 2006; Csiernik, 2002; Gruber & Taylor, 2006). Stanton and Shadish's (1997) meta-analysis of family involvement studies found persons stayed engaged longer in treatment and ultimately experienced better outcomes with family-involved treatment than other approaches, such as individual therapy, peer support, or educational classes. As Moos et al., (1990) reported, individuals were more likely to maintain abstinence when their family members' demonstrated cohesiveness, experienced little conflict, and focused on social activities.

Problem Statement

A paradox exists in the addiction treatment field. Government officials, academia, and professionals in the addiction field tout addiction as a chronic medical illness with agencies offering treatment from an acute care model perspective. The philosophy of acute care and chronic care models differs significantly. Kane, Priester, and Totten (2005) explained that use of the acute care model focuses on improving physical health and functioning. Health care professionals treat presenting symptoms within a brief and specified period of time with an expectation of a full recovery. A chronic care model takes a broader and multidimensional approach to both initial and continuing care. Larsen (2006)

explained that the chronic care model emphasizes maintaining wellness or keeping symptoms in remission rather than a cure. While the family often plays a peripheral role in the acute care model, just the opposite holds true in the chronic care model.

Within a chronic care model, clients, family members, and multidisciplinary services interact while adapting to ongoing changes in the chronic condition. In this model, a family member is as important as the individual in both treatment and continuing care phases. Larsen (2006) asserted that a chronic illness affecting one individual impact the family system and the family's QOL. Aspects of family QOL include physical and mental functioning, relationships, and a sense of family well-being. As Schrim (2006) explained, active involvement of family members in treatment and continuing care becomes crucial to enhance everyone's QOL.

McLellan, Lewis, O'Brien, and Kleber (2000) stated current outcome expectations operate under the supposition that addiction is a curable and acute condition. McLellan et al. observed the number of days/weeks/months abstinent from AOD, typically measured success rather than how a client's life, as well as their family's lives, improved.

From a chronic disease viewpoint, the nature of addiction includes cyclical patterns of heightened risk, onset, intervention, treatment, and relapse. Similar to other chronic conditions, such as diabetes, hypertension or cancer, persons addicted to AOD require long-term support with an emphasis on enhancing the individual's as well as the family's QOL.

White, Boyle, and Loveland (2002) observed that health care professionals encourage and support individuals with chronic conditions along with their families in seeking treatment at the first indication of symptoms affecting QOL. No other chronic disease operates its treatment modalities within an intensive environment and excludes

family members as in the traditional avenues for the treatment of addiction. Interestingly, denial of treatment or discharge from treatment does not occur when a patient's cancer returns. Instead, a re-evaluation of physical, mental, social, and economic needs of both the individual and family system. In sharp contrast, when AOD abuse persists or recurs punitive discharge from treatment may be the end result.

Limited insurance coverage reflects treating addiction from an acute care model perspective. Managed care, whether public or privately run, tightly controls duration and type of addiction treatment modality allowable for treatment. In essence, the current payment structure emphasizes the get them in, get them out mindset. Ancillary services such as, medical, legal, and transportation, generally offered to persons with a chronic condition are lacking in the addiction treatment system. The paradox of addiction, as a chronic but treated as an acute condition, continues as long as the managed care system dominates payment structures for addiction services.

Treatment Modalities

Traditional Modalities

Treatment modalities occur on a continuum from the most restrictive, short- and long-term residential rehabilitation programs, to lesser restrictive treatment such as partial hospital program, and the least restrictive, outpatient. Not mentioned detoxification services, offers an individual an opportunity to take a first step towards entering the treatment process. Most addiction professionals agree due to its brevity and focus, detoxification falls outside the treatment process.

For the last 50 years, the parent community mental health organization provided a comprehensive continuum of mental health services. The parent organization expanded its

services in the 1980's and early 1990's and began offering outpatient, partial hospital program, and short-term residential for persons with substance abuse and mental health problems associated with substance abuse.

Traditional modalities embrace counseling approaches such as disease model and cognitive-behavioral. Van Wormer and Davis (2008) succinctly list strategies often used in traditional counseling. For example, addiction professionals focus on adverse consequences—problems, losses, and monetary costs—associated with substance abuse. Van Wormer and Davis noted professional addictions counselors use confrontation to elicit change when clients exhibit resistance. Addiction professionals often admit that multiple relapses and lack of progress may result in discharge in treatment. Van Wormer and Davis explained that traditional counseling approaches often tackle past childhood hurts from upbringing in a substance abusing home.

All traditional treatment modalities lack primary involvement of family members. Although addiction professionals affirm family members' support as vital in the treatment process, active involvement often falls short of families' expectations. A case in point occurs when a family member facilitates intervention for entrance into treatment. After the intervention, addiction professionals whisk clients into treatment and typically denied visits or telephone calls for at least the first seven days.

According to McCrady, Epstein, and Sell (2003), the most common model used in addiction treatment is the disease model where addiction professionals view family members as codependents and enablers. They explained that enabling actions by codependents stop or soften the effects of harmful consequences of substance abuse for their loved one. Codependents obsess and control their loved one's behavior, enabling substance

abuse to continue. More often than not, addiction professionals view codependents as dysfunctional, who possess what is commonly referred to as their own baggage, and as such, addiction professionals encourage family members to separately seek their own treatment.

Peripheral family involvement precludes family members from developing new behaviors to support and promote sobriety and creation of a safe and sober environment. Having family members actively drawn into treatment in the role of change agents exist as a central principle of family-centered home based treatment.

Family-Centered Home Based Approach

The treatment offered by RAH is unique within the addiction field. While similar programs exist, no literature described the exact program dynamics. A similar program, Behavioral Health Rehabilitation Services commonly referred to as Wraparound services, exists in the mental health field.

In the 1970s, critics of the mental health system viewed children's mental health services as restrictive, disjointed, and poorly targeting children and families in need. To meet the mental health needs of children and their families, family based services have emerged as a viable option in the last few decades. VanDenBerg and Grealish (1996) described family based services as occurring in the community with the focus on offering services and supports. Individualized services and supports target both the children's and families' complex needs. As complexity increases, individualized services and supports follow. Similar to family based services, RAH focuses on the complex needs of both client and family impacted by addiction.

In some respects, RAH and traditional modalities function similarly. Both emphasize consistent use of problem solving techniques and improving communication with

key family members. Table 1 illustrates similarities and differences between RAH and traditional modalities in terms of recipients of treatment, interactions with professionals, and overall treatment goals.

Table 1

Focus of RAH and Traditional Modalities

Aspects of Treatment	Focus of RAH and Traditional Treatment	
	RAH	Traditional
1. Recipient of treatment	Individual (Client) and Family	Individual (Client)
2. Interactions with Addiction Professionals	24 hours per day, seven days per week in home, office and other settings	Set hours in office
3. Goal of treatment	Improve functioning of family	Improve functioning of individual

The primary point of departure between the two approaches rests on different counseling models. While traditional treatment focuses on problems and losses, RAH comes from a strengths-based perspective. Addiction professionals using traditional counseling models strongly encourage abstinence, however, RAH focuses on clients' desires to maintain moderation or abstinence. Rather than assessing perceived injuries from childhood, addiction professionals encourage clients to recognize and acknowledge strengths in upbringing. Instead of viewing resistance as non-compliance with treatment, from a strengths-based perspective addiction professionals view resistance as resiliency and pursue ways to tap into the resiliency.

According to Van Wormer and Davis (2008), addiction professionals that used a strengths-based model viewed the client and key family members as active participants in a collaborative effort. Rather than view key family members as codependents, enablers, or dysfunctional, these family members serve as vital partners in the treatment process. A strengths-based perspective focuses on identifying and building on the multiple capacities, resiliencies, talents, and coping abilities of the entire family system.

RAH focuses on the dynamics within the family as a whole, not merely the individual within the family. For a specified period of time, the client and family have access to the skills and expertise of an addiction professional 24 hours per day, seven days per week. Consequently, if a family member faces a decision about how to set limits in the moment, the family member has the opportunity to call an addiction professional for guidance and support regardless of the time of day or night.

Clients and families building family cohesiveness, developing high quality, satisfying, and functional lives while at the same time attaining and maintaining abstinence from AOD reflects RAH's primary goal. RAH blends strengths, skills, and knowledge of the client, key family member(s), and addiction professional.

Aspects of the Treatment Process

Treating addiction is multi-dimensional and as such, aspects other than family involvement play a role for achieving positive outcomes. Frequency of participation in treatment and length of time in treatment, referred to as duration, often becomes a well-documented predictor of positive outcomes in treatment facilities (DeLeon, Wexler, & Jainchill, 1982; Hubbard et al., 1997).

In a series of studies done by Simpson and colleagues, the number of counseling sessions, defined as engagement, predicted treatment outcomes (Simpson, 1981; Simpson & Sells, 1983; Simpson, Joe, Rowan-Szal, & Greener, 1997; Simpson, Joe, Rowan-Szal, & Greener, 1995). In the literature, engagement had variety of definitions. The inherent meaning of engagement remained clear—engagement reflected clients' acknowledgement of their addiction and behaviors indicative of changing from an "addict" or "alcoholic" to a "recovering person." Examining several aspects—family involvement, treatment intensity, and length of time in treatment—may provide valuable information about client engagement in the treatment process and QOL.

Purpose

This study was conducted for the purpose of comparing outcomes of RAH and traditional treatment offered in a behavioral health program in Southeastern Pennsylvania. It examined two specific outcomes, client engagement in the treatment process and QOL. Using a causal comparative design, the study analyzed secondary data obtained from two comparative archival case record groups.

Research Questions

The research questions for this study included:

1. Does engagement vary for clients participating in RAH versus Conventional groups?
2. Does family involvement affect engagement differently for clients participating in RAH versus Conventional groups?
3. Does intensity of treatment affect engagement differently for clients participating in RAH versus Conventional groups?

4. Does quality of life vary post discharge for clients who participated in RAH versus Conventional groups?
5. Does quality of life vary post discharge for key family members whose loved one participated in RAH versus Conventional groups?

Null Hypotheses

This study identified five null hypotheses:

1. RAH has no effect on engagement when controlling for other variables.
2. Family involvement has no effect on engagement independent of clients' participation in RAH or Conventional groups when controlling for other variables.
3. Intensity of treatment has no effect on engagement independent of clients' participation in RAH or Conventional groups when controlling for other variables.
4. QOL summary scores will not vary post discharge for clients who participated in RAH versus Conventional groups.
5. QOL summary scores will not vary post discharge for key family members whose loved one participated in RAH versus Conventional groups.

Significance of the Study

The 2008 National Survey on Drug Use & Health: National Results reported an estimated 8.90% of the population age 12 and older classified with substance abuse or dependence in the past year, based on criteria specified in the *Diagnostic and Statistical Manual of Mental Disorders, Revised 4th Edition* (American Psychiatric Association [DSM-IV-TR], 2000). Dennis and Scott (2007) asserted that epidemiological data shows that substance abuse disorders start in adolescence and continue for decades.

Between 1992 and 2008 admissions to AOD treatment programs nearly doubled for persons aged 50 years and older (Substance Abuse and Mental Health Services Administration [SAMHSA], 2010). The study found that treatment admissions went from 6.6% in 1992 to 12.2% in 2008. When looked at from specific drug categories, the study's results showed that

- Heroin abuse more than doubled from 7.2% to 16.0%.
- Cocaine abuse quadrupled from 2.9% to 11.4%.
- Prescription drug abuse rose from 0.7% to 3.5%.
- Marijuana abuse increased from 0.6% to 2.9%.
- Alcohol abuse decreased from 84.6% to 59.9%.

Dennis and Scott (2007) stated that individuals entering addiction treatment are a distinct sub-group of substance users because their addiction related problems are severe and intractable with the majority meeting the DSM-IV-TR criteria for substance dependence.

Abbott (2000) claimed one individual's behavior affects four to six other persons, parent(s), spouse or partner, sibling(s), child(ren), employer, and coworkers. Based on the above prevalence estimates and the number of persons affected by addiction, the consequences of substance abuse can impact an estimated 45-68% of the population.

As the Institute of Medicine (1997) explained, a complex interplay of biological, psychological, and social factors that influences treatment and outcomes after treatment defines addiction. Similar to other chronic diseases such as diabetes, hypertension, or cancer, disease severity, familial tendencies, personal choice, and supportiveness of family members interact and may complicate the treatment process. Unlike other chronic

conditions, addiction can engender strong, negative feelings in the public's perception, leading families to live in shame before initiating treatment. The Robert Wood Johnson Foundation (2001) reported research showing that among current drinkers, 3 out of 10 adults report alcohol abuse as a primary source of trouble in their family, while nearly 20% report drug abuse as a basis of family problems.

As with other chronic illnesses, insurance companies and managed care drive the payment structure. Presently, insurance companies or governmental agencies do not recognize RAH as a viable alternative to traditional treatment; therefore, all costs fall on the family. If evidence suggests RAH leads to positive outcomes, insurance companies and governmental agencies may set up a reimbursement schedule to pay for such a service. Furthermore, RAH may narrow the 10-year gap before the initiation of treatment, as noted by the National Epidemiologic Survey on Alcoholism and Related Conditions (NIH News, 2007). Consequently, family-centered home based type of programs such as RAH, may reduce treatment costs for the long term.

Living with someone with an addiction to AOD more often than not mirrors a living nightmare; nevertheless, families cannot by themselves conquer the power of addiction. Achieving lasting recovery requires hard work. The synergy of the three perspectives—client, family member, and an addiction professional—creates momentum for lasting change. From a chronic care model perspective, RAH offers an approach that emphasizes partnering with the client and family rather than solely treating addiction in the client. This study embraced three assumptions.

Assumptions

The first assumption rested on the completeness of case records that provided adequate and up-to-date information on family involvement, intensity, and duration. Cheevakasemsook, Chapman, Francis, and Davies (2006) noted that lengthy, repetitious and time-consuming forms and a cumbersome documentation system result in data redundancy, inconsistency, and irregularity of charting. The authors claimed documentation performed by professionals such as registered nurses, licensed clinicians, and addiction professionals, serves multiple purposes For example "a) ensuring continuity and quality of care through documentation; b) providing legal evidence of the process; c) providing evidence for obtaining appropriate reimbursement; and d) supporting the evaluation of the quality, efficiency, and effectiveness of care" (Cheevakasemsook et al., p. 367). More often than not, documentation becomes the vehicle for evaluating achievement of outcomes.

To address concerns of data redundancy, inconsistency, and irregularity in the charting process, the director of the program identified an addiction professional familiar with both paper and electronic charting process. Because of the designee's knowledge of the case record and documentation process, the designee knew what chart sections were applicable to the study. The designee reviewed and copied parts that offered the most detailed information such as progress notes and discharge summaries.

The second assumption rested on involving well-informed and educated case record reviewers, referred to as an addiction professionals panel. The study presumed that the panel because of their education and experience in the addiction field easily recognized behaviors that demonstrated engagement in the treatment process. Mertens (1998) stated the use of expert judgment augments objectivity when interpreting results.

For the secondary focus of the study, the third assumption rested with QOL encompassing more than anecdotes reported by clients and key family members. Summary QOL scores obtained from a psychometrically tested instrument, the Multidimensional Index of Life Quality ([MILQ] Appendix A) instrument, minimized concerns about the trustworthiness of data.

Definitions of Terms

The following section defines key terms used throughout this study:

1. Addiction: Addiction is a primary, chronic, neurobiological disease, with genetic, psychosocial, and environmental factors influencing its development and manifestations. It is characterized by one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving (ASAM, 2001, p. 2).
2. Contact time: Amount of time in minutes an addiction professional interacted with a client via face-to-face and group sessions and telephone calls.
3. Conventional group: One half of the case record sample that exclusively participated in single or various combinations of traditional treatment modalities.
4. Co-occurring disorder: Refers to both substance-related and mental disorders based on the DSM-IV-TR. (Adapted from Mee-Lee, Shulman, Fishman, Gastfriend, & Griffith, 2001, p. 361).
5. Duration: The number of days of service provided to a client determined by the first and last interaction between an addiction professional and client in RAH and a specific treatment modality, such as outpatient, partial hospital program, or short-term residential. (Adapted from Mee-Lee et al., 2001, p. 363)

6. Engagement: Demonstrable changes in thinking and behavior, which reflect a client's firm and clear decision or commitment to recovery (Adapted from DiClemente's (2003) summary of *"Taking Action: An Overview of the Dimensions of Change*" (p. 187) and Connors, Donovan, and DiClemente's (2001) *"Common Characteristics of the Action Stage of Change."* (p. 25)
7. Family: A social system of members with the primary objective of supporting each other. Individuals may be blood relative or non-kin who are emotionally bonded. For this study, they must live in the same household and emotionally closest to the individual in treatment. Some examples include, spouse or partner, parent, and adult child (Adapted from Johnson, 2000).
8. Family-centered home based approach: Referred to as RAH in this study that views the family as the focus of treatment and recognizing addiction cannot be treated appropriately without participation of the family system. Coaching by an addiction professional is provided seven days per week, 24 hours a day, for up to 120 days (Adapted from a description of RAH, Overcoming Alcohol and Drug Problems. The Recovery Model, written by behavioral health program utilized in this study).
9. Family involvement: Number of minutes key family member(s) participated in face- to-face sessions and telephone calls with an addiction professional with or without the client present.
10. Group Session: Four types of groups typically conducted over 90 minutes facilitated by an addiction professional(s) with 8-15 clients.

Types of groups include:

- "Skills development groups, which hone the skills necessary to break free of addiction.
- Cognitive–behavioral groups, which rearrange patterns of thinking and action that lead to addiction.
- Support groups, which comprise a forum where members can debunk each other's excuses and support constructive change.
- Interpersonal process group psychotherapy, which enable clients to recreate their pasts in the here-and-now of group and rethink the relational and other life problems that they have previously fled by means of addictive substances." (SAMHSA, 2005, p. 3)

11. Intensity: Number of minutes a client and addiction professional interacted via face-to-face and group sessions and telephone calls divided by duration.
12. Key family member: Defined as someone to whom the client feels so close that it is hard to imagine life without them (Antonucci, 1986).
13. Opiods: Opiods referred to family of opiates including natural, synthetic and semi-synthetic. Examples of opiods include heroin and painkillers such as morphine, methadone, Buprenorphine, and hydrocodone. Some brand names of opiods consist of OxyContin®, Percocet®, Vicodin®, Percodan®, Tylox® and Demerol® (The National Alliance of Advocates for Buprenorphine Treatment, n.d.)
14. Rehab at Home (RAH): A professional coaching program for families and loved ones of addicted individuals. RAH uses the strength of the family in the process of recovery.

15. Traditional treatment: The treatment system for individuals with AOD abuse or dependency is commonly conceptualized as outpatient, partial hospital program sometimes called intensive outpatient or day treatment, short- and long-term residential programs. (Adapted from VanWormer and Davis, 2008, p. 111)
16. Traditional treatment modalities: A single therapeutic treatment method or any combination of the following:
    - Outpatient: An organized service in which addiction professionals provide professionally directed evaluation and treatment of substance-related disorders. Services are provided in regularly scheduled sessions of fewer than nine hours a week. Services generally are terminated within 6 to 12 months (Adapted from Mee-Lee et al., 2001, pp. 45, 365).
    - Partial hospitalization program: The provision of education and treatment services while allowing clients to apply their newly acquired skills in real world environments. Treatment may be offered during the day, before or after work or school, in the evening or on a weekend. Partial hospitalization programs, here after referred to as partial hospital program, generally feature 20 or more hours of programming per week and typically no more than 25 days. (Adapted from Mee-Lee et al., 2001, pp. 55, 365)
    - Short-term residential: Organized treatment services that feature a planned regime of care in a 24-hour residential setting. Clients were housed in, or affiliated with, permanent facilities where clients resided safely. They were staffed 24 hours a day. Duration of treatment lasted no more than 45 days. In

this study, the variable residential referred to short-term residential. (Adapted from Mee-Lee et al., 2001, p. 71)

17. Quality of Life: A multidimensional evaluation of individuals' current life circumstances in the context of the culture and value systems in which they live and the values they hold. QOL is primarily a subjective sense of well-being encompassing physical, psychological, social, and spiritual dimensions (Haas, 1999 p. 219).

Limitations of the Study

RAH as a new program in only one agency consisted of a relatively small number of participants in comparison to the number of participants in traditional modalities. For example, in 2006, 1180 unduplicated clients received traditional modalities—outpatient, partial hospital program, and residential. The same year, the program offered RAH to 19 clients and/or family members with a cumulative total, as of May 2008 equal to 90. Generalizing findings to the population was compromised. In addition, random assignment did not apply in this study because of the small number of RAH participants. Statistical control served as an alternative method of control.

Due to recent collection of QOL data, limited post treatment data existed for clients and key family members in RAH and traditional modalities. The likelihood of connecting with everyone via telephone decreased with time, which posed limits for generalization concerning treatment effectiveness in relation to QOL.

Because of the cost associated with RAH, the sample was homogenous in terms of age, ethnicity and race, education, and socioeconomic status. Although these variables cannot be controlled, matching became a viable alternative. Kazdin (1998) described

matching as the grouping of subjects on the basis of their similarity on one specific or a set of characteristics.

In this study, RAH and traditional treatment case records were matched along five characteristics: (a) gender, (b) age range, (c) primary drug of choice, (d) co-occurring mental health disorder, and (e) prior AOD treatment. As Kazdin (1998) noted, the advantage of matching is that "subjects at each level of the characteristic appear in each group and the groups do not differ on the characteristic prior to treatment" (p. 94).

Family involvement typically includes spouse, partner, or parent(s); although, other family members may opt out to be actively involved in the treatment process. For example, only one parent from a divorced family may choose not to participate in the treatment process. As participants learn new ways of communicating, addressing needs, and dealing with family-related issues, others' absence may hinder progress toward recovery and ultimately influence QOL for both client and family system. In reality, other family members can wittingly or unwittingly sabotage the treatment process by their lack of participation. Although this was not controlled for this situation, addiction professionals typically work towards having everyone on the "same page" to maximize treatment effectiveness.

Summary

Kaplan (1997) asserted the magnitude of the stigma associated with addiction is unlike other chronic conditions. Individuals and their families feel so overwhelmed by the stigma, hence preventing them from seeking help for 10 years (NIH News, 2007). As the addiction grows worse, families face profound dilemmas about how to respond to the individual's erratic behavior. Families attempt coping strategies such as, controlling AOD

use, avoidance, or withdrawal. As time passes, family members become physically drained and emotionally spent, leading to illness, anxiety, and depressive symptoms. Closing the 10-year gap becomes critical to prevent the complex and tenacious problems associated with addiction.

The cost of AOD abuse has a marked impact on the macro level—society—and the micro level—families. Substance use disorders cost the nation an estimated $276 billion a year, with a significant amount of this expense resulting from lost productivity and increased health care spending (Ensuring Solutions to Alcohol Problems, 2007). These costs reflect productivity losses generated by involvement in the health care system related to medical and mental health illnesses and premature deaths. In addition, involvement in the criminal justice and social welfare systems lead to additional costs to society. Although an estimated price tag can be placed on the cost to society, when AOD abuse dominates every waking moment for families, a price on human suffering can never be underestimated or overestimated.

As espoused by the chronic care model, involving family members in a comprehensive treatment package with continuing care becomes essential. Although a multiplicity of reasons exist for the inclusion of family members in treatment, McCrady et al. (2003) argued these three top contenders (a) help the user change his or her substance use, (b) change family members' own behavior and patterns of coping, and (c) modify dysfunctional patterns of interaction.

Although the addiction field acknowledges the importance of including family members in the treatment process, traditional treatment typically center more on the client rather than the family system. The first part of this study examined the impact family

involvement had on treatment engagement. The second part of this study examined if QOL varied post discharge for clients who participated in RAH versus Conventional groups and their key family members.

Within the context of the theoretical perspectives, attachment, social network, and role theories, the ensuing chapter will provide a thorough review of the literature on the rhetoric of addiction, addiction outcome studies, engagement in the treatment process, family approaches to addiction treatment, family involvement in treatment, and QOL.

CHAPTER II REVIEW OF RELATED LITERATURE

Chapter Overview

This chapter offers relevant literature on two aspects of treatment effectiveness: a) client engagement in treatment; and b) QOL post treatment for clients and family members. The literature review is structured into seven sections delineated as

- an overview of definitions and descriptions of substance abuse and addiction from multiple perspectives—researchers, professional organizations, governmental entities, and addiction professionals;
- outcome studies examining factors such as treatment modality, client and program characteristics influencing engagement in the treatment process;
- three specific family-based treatment models and pertinent outcome studies;
- QOL as an endpoint measurement of treatment effectiveness;
- stages of change;
- theoretical location for this study; and
- tying it all together.

The Rhetoric of Addiction

A review of the literature revealed a multiplicity of terms and definitions describing AOD problems. At least 15 phrases exist in the professional literature: alcoholism, alcohol abuse, alcohol dependence, problem drinking, excessive drinking, drinking problems, drug abuse, drug addiction, drug dependence, substance abuse, substance dependence, chemical abuse, chemical dependency, chemical addiction, and addiction.

Definitions vary depending on the perspective of a particular researcher, author, discipline, or organization. Raskin and Daley (1991) noted phrases and definitions range

from the theoretical used by researchers, to the practical used by self-help groups, such as Alcoholics Anonymous (AA). Researchers typically avoided the term addiction altogether and used the clinical diagnosis of dependence endorsed by the American Psychiatric Association (APA) and International Classification of Diseases. In other arenas, the terms—dependence and addiction—were both commonly used and interchangeable. The World Health Organization ([WHO], 2008), which does not technically support the term addiction, defined it because they admit it is a word commonly used and recognized by the general public. Other disciplines, sociology, nursing, and psychology, use the word addiction to describe dependence on AOD or behaviors, including sexual activity, gambling, eating, or spending. Colloquially, addiction extends its meaning to positive activities, such as exercise.

White (2004) wrote the evolution of addiction rhetoric began in the 1930s. This timeframe marks a change when drinkers commenced being viewed as an undifferentiated group consuming alcohol because of a lack of will power. Instead they separated into two distinct categories of normal and abnormal drinkers.

Regardless of how addiction is defined and used, the connotation of the word addiction has its own set of problems. During the last four decades, addiction from a pejorative perspective conveys disease or a sin, and is subject to social and moral sanctions. Allegations of addiction to AOD, and some activities such as gambling or sexual proclivities, elicit emotional, subjective, and value-laden responses from the public at large.

According to O'Brien, Volkow, and Li (2006), the pejorative connation of addiction and the potential for further stigmatization of people with substance use disorders pointed the WHO and APA in the 1980s to select dependence in each of their classification systems. With a 20-year perspective, the authors contended they made a serious mistake, and

centered their argument on confusion of the word dependence with physical dependence. The authors explained that physical dependence refers to adaptations resulting in withdrawal symptoms when drugs such as alcohol or heroin are stopped. Depending on the type and amount of drug consumed, an expected pharmacological response occurs. But this response is distinct from compulsive drug-seeking behaviors associated with addiction.

In the 1980s, White (2004) explained professional organizations and governmental agencies began redefining the required elements of addiction. Besides tolerance and withdrawal, other facets—compulsion, loss of control, and continued use in spite of adverse consequences—broadened the description of addiction.

Over the past three to four decades, disciplines, governmental agencies, professional organizations, academia, and individual researchers expended much effort to not only understand the nature of addiction to AOD, but also clarified its definition. The literature was replete with commendable efforts by many organizations and governmental bodies. These entities worked collaboratively to clarify definitions and develop guidelines and criteria for a classification system for substance abuse, dependence, and addiction. Today, several high profile organizations and governmental organizations view alcoholism, dependence, and addiction to AOD as very similar if not the same. These organizations asserted alcoholism, dependence, and addiction are biological disorders—a brain disease that leads to compulsive behaviors and negative health consequences, which encompasses psychological and social components.

Definitions of addiction adopted by high profile organizations are as follows:

1. American Society on Addiction Medicine ([ASAM] 2001):

Addiction is a primary, chronic, neurobiological disease, with genetic,

psychosocial, and environmental factors influencing its development and manifestations. It is characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving. (p. 2)

2. National Institute on Drug Abuse ([NIDA] 2009):

   "A chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences" (p. 1).

3. The National Council on Alcoholism and Drug Dependence (1990):

   Alcoholism and drug dependence is a primary, chronic disease with genetic, psychosocial, and environmental factors influencing its development and manifestations. The disease is often progressive and fatal. It is characterized by continuous or periodic: impaired control over drinking/drug use, preoccupation with AOD use despite adverse consequences, and distortions in thinking, most notably denial. (p. 1)

While all three definitions of addiction were appropriate for this study, the definition adopted by ASAM provided the underpinnings for the study. I primarily chose this particular definition because agencies providing addiction treatment typically use this definition. This study used the word addiction to denoted alcoholism, alcohol dependence, and drug dependence. It was acknowledged that individuals can be dependent on alcohol or other types of drugs, or more typically both. Therefore the term substance(s) refer to AOD. While debates ensued among researchers, professional organizations, governmental entities, and addiction professionals over a consensual definition of addiction, others sought answers about the effectiveness of treatment.

Addiction Treatment Outcome Studies

Fletcher, Tims, and Brown (1997) noted that federal funding of addiction treatment grew exponentially in the late 1960s to early 1970s. They explained that in 1969, only six community mental health centers existed. That number increased to approximately 300 by 1973 and more than 3,000 by 1977. In conjunction with this remarkable growth and influx of federal monies into treatment services, questions about the efficacy of treatment followed. Over the last 30 years, three large-scale, national outcomes studies and other clinical investigations ensued.

Fletcher et al. (1997) described these large-scale national evaluation studies as unique opportunities to not only understand the treatment process and its effectiveness, but also recognize the potential individual and societal benefits. According to Fiorentine, Nakashima, and Anglin (1999), evidence garnered from these studies suggested treatment led to better long-term outcomes such as abstinence from AOD, improvements in social functioning and employment status, and decrease in criminal activities.

National Outcome Data Studies

Drug abuse reporting program (DARP). Fletcher et al. (1997) noted in the 1960s, the United States saw dramatic increases in the use of illicit drugs—marijuana, hallucinogens, stimulants, and depressants. Even more dramatic were the increasing rates of heroin overdose deaths, climbing crime rates and arrests, and the high levels of heroin use by Vietnam veterans. In response, state and the federal government passed legislation for compulsory treatment for heroin users. Federal resources for community-based drug abuse treatment centers expanded under the "War on Drugs" initiative in 1971 (Fletcher et al., p. 217).

According to Tims and Ludford (1984), community-based treatment programs—outpatient methadone maintenance, outpatient drug-free treatment, and detoxification—were relatively new and unproven in 1969. These programs, especially outpatient methadone maintenance programs, experienced their share of skeptics,

Simpson, Savage, and Lloyd (1979) explained that in 1969, under the auspices of the Institute of Behavioral Research at Texas Christian University, a multisite, large-scale data collection process for monitoring and evaluating the community-based drug treatment system commenced with aide from federal funding through the National Institute on Mental Health and NIDA. The Drug Abuse Reporting Program (DARP), the first of three national multi-program studies ran from 1969 to 1973, collected a comprehensive data set from a cohort of approximately 44,000 clients. The studies primarily involved heroin addicted clients admitted to 52 treatment programs across the United States and Puerto Rico. These programs included methadone maintenance, therapeutic communities (also known as drug-free residential settings), outpatient drug-free, and detoxification.

In 1974, according to Simpson (1981), the follow-up post treatment research phase began in earnest. The study included nearly 6500 clients in three separate DARP admission cohorts from 34 treatment agencies. DARP provided substantive methodological rigor to understand heroin clients as a whole, their behavioral patterns and experiences in various treatment modalities, and post treatment effectiveness. Data included clients' characteristics at intake and during treatment, treatment retention, and post treatment outcomes. Published studies of DARP emerged in the early 1970s.

Evidence from these studies, published in five volumes edited by Sells (1974a, 1974b) and Sells and Simpson, (1976a, 1976b, 1976c), showed significant improvement in

client outcomes. These outcomes encompassed illicit drug use, employment and other productive activities, and criminality. As early as 1981, Simpson concluded length of time in treatment predicted post treatment outcomes. For example, clients reported positive outcomes when in outpatient drug-free settings for at least three months; whereas, 12 months in methadone maintenance treatment seemed to produce better outcomes.

With the exception of detoxification services, Simpson contended that methadone maintenance, therapeutic communities, and outpatient drug-free programs produced some level of efficacy. This was true despite considerable variation among the different treatment programs in terms of goals, service procedures, and client expectations. Supporting evidence led Simpson (1981) to recommend that drug abuse treatment continue for at least three months to maximize positive outcomes.

Simpson (1981) outlined three basic elements that warranted future research (a) the extent to which client commitment to changing his/her life plays a role in the treatment and post treatment process, (b) influence of client-counselor relationship, and (c) length of time in a therapeutic relationship a client needed before benefiting from a treatment experience (p. 39). These recommendations were followed up in both second and third national outcomes studies.

Treatment outcomes prospective study. Hubbard, Rachal, Craddock, and Cavanaugh (1984) detailed the second of three large-scale longitudinal investigations, Treatment Outcomes Prospective Study (TOPS). TOPS was modeled after DARP and funded by NIDA. In contrast to DARP, which included only heroin users, TOPS included clients who used other illicit drugs such as cocaine, either alone or in combination with heroin.

Consisting of both treatment and post treatment data, from 1979 to 1981, TOPS included 11,750 clients. Participants represented 41 federally funded treatment programs—residential, outpatient detoxification, outpatient methadone maintenance, and outpatient drug free.

According to Hubbard et al. (1984), TOPS primary purpose centered on collecting valid, current, and nationally based information. It gathered a plethora of data elements from admission to discharge about clients' characteristics including: AOD history, drug-related problems, support and involvement of family and others in treatment, family composition changes, suicidal thoughts and attempts, criminality, and employment. TOPS expanded the DARP research by including detailed data about treatment program environments and offered services.

TOPS data also incorporated post treatment follow-up interviews. Depending on clients' year of admission to a specific type of treatment program, follow-up interviews ranged from 90 days to 5 years. Evaluation of post treatment outcomes included: drug and alcohol use, illegal activity, especially predatory crimes, employment or other socially approved productive behavior, mental health disorders, retention in treatment, and successful completion of treatment.

According to Hubbard et al. (1984), a significant shift in drug abuse trends appeared in the TOPS data when compared to DARP. Although three quarters of admissions reported heroin as their primary drug of abuse, there was less daily use of heroin and more polysubstance abuse. TOPS data reflected societal drug abuse trends at the time.

Hubbard et al. (1984) concluded that TOPS findings supported conclusions by other researchers using DARP data. They noted that while a number of treatment approaches

were effective, outcomes varied according to the length of stay in a particular treatment modality. Specifically, clients that stayed at least six months in outpatient drug-free programs had significantly better outcomes than those who stayed less than six months. Similarly, clients in outpatient methadone and long-term residential programs had better outcomes if their stay extended to at least 12 months.

Hubbard et al. (1984) reported a dramatic reduction in the use of clients' primary drug of choice, illegal activity, and depressive symptoms post treatment from residential and outpatient drug-free treatment modalities. As well, marked increases in employment came out in the TOPS data set.

Hubbard et al. (1984) recommended future research questions move beyond examining the effectiveness of treatment to focusing on how treatment influences future behavior, what client-level characteristics influence treatment, who benefits the most from treatment, and how long and under what conditions do behavioral changes continue.

In the early 1980's, the federal government became lulled into falsely believing that heroin and cocaine abuse was under control; however, a cocaine epidemic was brewing. Fletcher et al. (1997) noted by the end of the decade cocaine epidemic proportions reached across all socioeconomic strata and occupational groups. In part, the surge emerged relative to a new smokable form of cocaine, crack, more potent than intranasal use, cheaper, and easily available. A new contingency of illicit polysubstances users—cocaine and heroin—grew.

Fletcher and colleagues (1997) explained uncertainty grew concerning the applicability of past research findings to the present day. Since the first outcomes study in the 1970s, the AOD abuse image in the late 1980s and early 1990s changed radically. It

now reflected a higher probability of polysubstance abuse, greater addictive potential of some substances, such as crack, and a growing incidence of blood-borne infections such as autoimmune deficiency syndrome (AIDS) and Hepatitis B and C.

Worries about government spending levels led the Federal Government to cut treatment resources. Drastic reductions in state and local treatment funds and the arrival of managed care forced concurrent changes in the structure and organization of the treatment system. Reductions in length of stays in all treatment modalities were commonplace. Researchers turned their attention to treatment effectiveness in light of the current picture, thus, the third large scale national outcome study, the Drug Abuse Treatment Outcome Study (DATOS) commenced.

Drug abuse treatment outcome study. According to Flynn, Craddock, Hubbard, Anderson, and Etheridge (1997) DATOS not only enabled replication of previous outcome studies, but also set out to determine (a) differential treatment effects by client and types of services, (b) treatment outcomes at 12 months post treatment, and (c) cost-effectiveness and cost-benefits of treatment. Funded by NIDA, DATOS spanned the years 1989 to 1996. DATOS included 10,010 clients entering approximately 100 publicly funded and private programs—long-term residential that included therapeutic communities, short-term residential, outpatient methadone maintenance, and outpatient drug-free—across the United States. Private treatment facilities were included in the data set; whereas, in DARP and TOPS only publicly funded agencies were studied.

It is noteworthy that detoxification programs were excluded in this third large-scale outcome study. The lack of positive long-term outcomes led researchers to drop

detoxification programs from DATOS. Previous findings from DARP and TOPS studies pointed to a shortened stay as the probable reason for lackluster outcomes.

According to Flynn et al. (1997), the expanded DATOS data set encompassed both client-level data and program characteristics. Fletcher et al. (1997) described client-level domains that included: demographics, AOD use, physical and mental health problems, income, illegal involvement, employment, cognitive functioning, motivation, readiness for treatment, and AIDS risk behaviors.

Similar to TOPS, clients abusing AOD participated; however, a singular outcome study, exclusively involving persons with cocaine dependence, was incorporated into the overall DATOS project. DATOS primary researchers, Simpson, Joe, Fletcher, Hubbard, and Anglin (1999) replicated findings from DARP and TOPS outcome studies. Evidence showed that treatment produced significant reductions in cocaine use. This was especially true for clients who remained in treatment at least 90 days in outpatient drug-free or 6 months in long-term residential settings. Findings showed increases in full-time employment and reductions in criminal behaviors. These findings emerged when clients were in long-term residential treatment for at least six months.

Simpson and colleagues (1999) acknowledged the value in matching level of problems and needs at intake to the appropriate level of service. The researchers reported that clients experiencing severe problems at intake were likely to benefit from longer care in residential services. On the other hand, outpatient programs showed to be effective when clients experienced medium-level problems. Poorer treatment outcomes were associated with the presence of co-occurring—mental health disorders and addiction—and psychosocial severity at intake.

In a more recent study using the data generated from DATOS, Hubbard, Craddock, and Anderson (2003) focused their attention on approximately 1,400 clients at the five year post treatment juncture. Similar to one-year post treatment follow-up, positive outcomes, in terms of illicit drug use, illegal activity, and full-time employment were noted among all three treatment modalities—long-term residential, outpatient drug-free facilities, and outpatient methadone treatment programs. Once again, length in treatment—at least six months—predicted positive outcomes.

Cooperative study. Fletcher et al. (1997) described a new phase of DATOS, which commenced in 1995. Through a cooperative agreement between NIDA and three research sites, researchers were granted access to DATOS databases. Four collaborating researchers and sites focused their research on four specific themes including (a) access and usage of health services, coordinated by Hubbard from the National Development and Research Institutes; (b) retention and engagement, coordinated by Simpson from the Institute of Behavioral Research at Texas Christian University; (c) life course of treated addicts, coordinated by Anglin at the Drug Abuse Research Center of the University of California at Los Angeles; and (d) policy-relevant drug abuse treatment, coordinated by Fletcher at NIDA.

National Drug Treatment Monitoring System (NDTMS) in England. In a more recent national study in England, Marsden et al. (2009) studied the effectiveness of community interventions for addiction to heroin and crack cocaine. Interventions included interpersonal, motivational, or cognitive-behavioral therapies or a combination. Using data from NDTMS, they noted similar results as outcome studies conducted in the United States.

They found that the first six months of psychosocial treatment was associated with reduced use of heroin and crack cocaine.

Outcome studies and marijuana. National outcome studies focused primarily on alcohol, heroin, and cocaine, but when marijuana was examined as part of outcome studies, such as DARP, TOPS, DATOS, and others, individuals demonstrated the smallest amount of change in usage patterns when receiving outpatient treatment (Dennis, Babor, Roebuck, & Donaldson, 2002). More recent studies showed more promising results in terms of positive outcomes for marijuana users, but methodological problems such as low treatment completion and low follow-up rates taint findings, as noted by Dennis et al.

Marijuana users present a different picture than other drug users. Acute consequences of marijuana use initially do not appear as severe as with other drugs (Budney & Moore, 2002). Its impact is often not realized for years (Dennis et al., 2002). Chronic marijuana use leads to an array of health, emotional, behavioral, social, and legal problems. Solowij and Battisti (2008) explained long-term use creates cognitive and functional impairments in terms of attention, memory, ability to process complex information, and motivation. Dennis et al. (2002) explained that treatment strategies are not designed with the marijuana users in mind. Copeland, Swift, and Rees (2001) concurred, stating that current treatment modalities fall short in addressing the needs unique to individuals abusing marijuana.

Outcome studies and gender. According to Greenfield et al. (2007) when treatment outcomes were reported as a function of gender, mixed results were evident. The authors' systematic review showed that gender alone was not a specific predictor of treatment outcome. When researchers noted gender differences then women came into

treatment with more psychosocial problems, received more services, and had better outcomes than men in terms of reduction of substance use at post treatment. Their findings suggested that specific characteristics such as socioeconomic characteristics (education, employment, and dependent children), history of victimization, and co-occurring disorders may differentially affect treatment outcomes by gender.

In conclusion, studies from DARP, TOPS, DATOS, and NDTMS clearly showed the efficacy of drug abuse treatment. Fletcher et al. (1997) acknowledged uncertainty of factors considered essential for effective treatment. In the studies reviewed, researchers recommended further examination of the interplay between an assortment of client and program-level characteristics that could potentially enhance or impede treatment engagement.

As the addiction research field continued to mature, a bevy of studies (Broome, Simpson, & Joe, 1999; Fiorentine & Anglin, 1996; Fiorentine et al., 1999; Joe, Simpson, & Broome, 1999; McLellan, Arndt, Metzger, Woody, & O'Brien, 1993; Simpson, Joe, Rowan-Szal, & Greener, 1995; Simpson, Joe, Rowan-Szal, & Greener, 1997) emerged in the 1990s, which described factors contributing to treatment engagement. Researchers hypothesized that if clients experienced treatment engagement then positive post treatment outcomes were more likely to ensue.

Engagement

Examining Engagement

Overall, researchers examined client engagement from numerous viewpoints—frequency of attendance at counseling sessions, duration of treatment, confidence in and commitment to the treatment process, and types and frequency of topics in counseling

sessions. More often than not, engagement, in whatever way it was defined, was compared with client characteristics. Additionally, the impact of other contextual factors was studied. For example, some contextual factors encompassed client-counselor working alliance and program-level characteristics such as ancillary services offered.

Fiorentine and Anglin (1996) exclusively described engagement as counseling session frequency. Using a sample of 330 clients in 26 outpatient drug treatment programs in Los Angeles County, this study had just one research question—"Is the frequency of counseling associated with the effectiveness of outpatient drug-free treatment?" (p. 342)

These researchers found frequency of participation in group and individual counseling predicted post treatment drug use even if the client had not completed the planned six month outpatient treatment regimen. Higher attendance in group and individual counseling sessions was associated with lower levels of relapse.

In another study, Joe et al. (1999) used a subsample of the national DATOS data, which encompassed close to 1,360 clients in various treatment modalities—outpatient methadone, outpatient drug-free, and long-term residential. Researchers measured three variables—engagement, therapeutic involvement, and treatment readiness—after clients were in various treatment modalities for one month.

Joe et al. (1999) operationalized engagement as session attendance, and expanded its definition by (a) times drugs/addiction or related health topics were discussed; and (b) times other topics (education, legal matters, employment, expenses for living, transportation or housing) were discussed. Therapeutic involvement covered indicators concerning rapport between counselor and client, client confidence that treatment was effective, and client

commitment to treatment. The final indicator, treatment readiness, measured intrinsic motivation.

Joe et al. (1999) concluded that therapeutic involvement more than session attributes predicted treatment outcomes. They asserted that intrinsic motivation affected retention in treatment directly through the therapeutic relationship between client and counselor and indirectly through the issues discussed in counseling sessions.

In a companion study, Broome et al. (1999) used a subsample of 1,141 clients from the DATOS outcome study. Comparable to Joe et al. (1999), Broome et al. also included three treatment modalities—outpatient methadone, outpatient drug-free, and long-term residential. This study spanned pretreatment, early treatment, and month three, in contrast to Joe et al. (1999) who studied similar variables at one month.

Broome et al. (1999) considered the effect of client and program-level influences on engagement. They described engagement not only as counseling session attendance, but also therapeutic involvement—confidence in and commitment to treatment. Client-level characteristics were analyzed to determine their effect on therapeutic involvement. Program characteristics were examined as influences on overall therapeutic involvement levels.

Broome et al.'s (1999) findings suggested a supportive therapeutic environment enhanced treatment engagement for all three treatment modalities. Client characteristics and experiences, rather than program characteristics, were more important for predicting therapeutic involvement—confidence in and commitment to treatment. These findings were consistent with Joe et al. (1999), indicating counselor rapport as an important factor in the prediction of positive outcomes. Treatment engagement was likely to occur primarily when

a positive therapeutic climate co-existed with program characteristics, such as ancillary services.

Fiorentine et al. (1999), as part of a larger study to evaluate the effectiveness of a treatment initiative in Los Angeles County, interviewed approximately 400 outpatient clients at intake and 350 clients eight months post treatment. These researchers took a slightly different stance on describing client engagement. They viewed engagement relative to both intensity and duration. Frequency of sessions and other program activities defined intensity and duration of treatment as length of time in treatment. Engagement was then measured as the product of the number of sessions in which clients participated multiplied by the number of weeks in treatment. These researchers set out to identify specific client characteristics and treatment experiences that led to high levels of engagement.

Included in the study were variables measuring client characteristics, for example: demographics, pretreatment AOD use, previous treatment, criminal history, mental health, and attitudes and expectations of treatment. Program characteristics included (a) barriers to treatment use, (b) perceived utility of treatment, (c) presence and use of ancillary services, and (d) client-counselor relationship.

Fiorentine et al. (1999) concluded that helpfulness of treatment and ancillary services, as well as a positive client-counselor relationship contributed to clients' engagement in a treatment program. The authors suggested that intrinsic factors, such as motivation and willingness to change, were less important than what clients experienced once in the treatment setting. Fiorentine et al. further contended that provision of ancillary services, such as child care and transportation, may improve engagement and subsequently impact the effectiveness of treatment services.

Hser, Grella, Hsieh, Anglin, and Brown (1999) used a subsample of cocaine abusing clients from DATOS. This study contrasted treatment first-timers with clients who experience multiple treatment episodes. Findings suggested that multiple episodes in treatment programs led to poorer outcomes. However, Hser and colleagues' findings were inconsistent with other studies' conclusions regarding counseling session frequency. They reported frequency of group and individual counseling during the first month in treatment did not predict post treatment abstinence for any modality.

Hser, Evans, Huang, and Anglin (2004) examined the relationship between treatment processes and outcomes for client in community-based drug treatment programs. They reported greater service frequency and satisfaction were positively related to treatment retention and favorable treatment outcomes nine months post treatment.

Conclusions from earlier studies were supported by more recent studies (Dearing, Barrick, Dermen, & Walitzer, 2005; Fiorentine, 2001; Hubbard, Craddock, & Anderson, 2003) that frequency of session attendance, duration of treatment, treatment satisfaction, therapeutic involvement, and client expectations served as indicators for treatment and post treatment success. However, Dearing et al. noted few studies examined these factors simultaneously in terms of predicting treatment success.

Dearing et al. (2005) set out to determine if client expectations about treatment, the strength of working alliance, and session attendance enhanced client satisfaction, and lead to positive outcomes. Decreased level of alcohol use and increased abstinent days described positive outcomes in this study.

Recruited from an addictions research and treatment center in a mid-Atlantic state, approximately 200 clients in outpatient treatment participated. Dearing et al. (2005)

concluded that (a) less drinking and higher abstinence rates were associated with clients' expectations, and (b) the establishment of a positive client-counselor therapeutic relationship was associated with both higher treatment attendance and client satisfaction.

In another recent, replicated study, Fiorentine (2001) interviewed approximately 360 adult clients at eight months post treatment. The purpose of the study was to determine if more is better, that is, did counseling frequency predict higher rates of AOD abstinence? Fiorentine defined engagement as counseling intensity, in which intensity meant frequency of participation in group and individual sessions and duration in minutes of counseling sessions. He found increased attendance at counseling sessions predicted higher rates of AOD abstinence. Duration of counseling sessions did not predict higher rates of abstinence. Fiorentine found that clients who completed a six month outpatient program, attended 12-step meetings on a weekly basis, and participated five group counseling session per week had the highest rates of post treatment abstinence.

Evidence garnered from studies suggested that multiple client and program-level factors predicted positive treatment outcomes. The literature was replete with varying definitions and descriptions of treatment engagement, which impeded generalizations about how specific client characteristics and program components impacted treatment engagement.

Engagement was not an easy construct to define by treatment researchers. Most of the dimensions that described engagement focus on frequency of participation, length of stay (retention) in treatment, length of sessions, distinct client or treatment/program characteristics, or therapeutic relationship variables. Family involvement as a factor

affecting engagement was conspicuously absent in almost all of the large-scale outcome studies and clinical investigations.

Family Involvement and Engagement

Using DATOs' data, Grella, Hser, Joshi, and Anglin (1999) examined influences of family and friends during 12 months before treatment and then again 12 months after treatment. Focus was on negative influences, such as use of illicit drugs, arrests or time spent in jail. As well, NIDA failed to include family members in a report on treatment entry and engagement.

NIDA in 1996 convened scientists to discuss specific aspects of drug abuse treatment, consisting of treatment readiness, motivation for change, ethnographic reports of drug abusers' perceptions of and attitudes toward treatment, and reports on alternative treatments for high-risk drug abusers. In a special report, "*Drug Abuse Treatment Entry and Engagement: Report of a Meeting on Treatment Readiness*" (Battjes, Onken, & Delany, 1999) a list of research priorities was identified. One recommendation suggested the use of qualitative methods to clarify the role and influences of social networks in addiction and recovery. However, family members were not explicitly included.

Beattie (2001) completed a meta-analysis that examined the association between drinking outcomes and social relationships. Studies from 1965 to 1996 were coded for inclusion. Beattie concluded that when significant others were included in the treatment process, a positive relationship existed between drinking outcomes and relationship quality and marital/family adjustment. Essentially, a higher degree of marital adjustment was associated with less drinking.

From a chronic disease viewpoint, the nature of addiction includes cyclical patterns of heightened risk, onset, intervention, treatment, and relapse. As in other chronic conditions such as diabetes, hypertension, or cancer, similar factors affect susceptibility, onset, and treatment success (O'Brien & McLellan, 1996). Persons with an addiction, like other chronic conditions, require long-term support with an emphasis on including family members throughout the process. Historically, unlike other chronic illnesses, blame centered on women for their partners' substance abuse.

Family Approaches to Addiction

Historical Overview

Disturbed Personality Theories

According to Bailey (1961), prior to the 1950s a psychiatric focus hallmarked early research on alcoholism and marriage. Two early theories attempted to explained distress experienced by women with alcoholic husbands per McCrady et al. (2003). Disturbed personality and decompensation theories hypothesize that women resolve their own personality conflicts through their alcoholic husbands.

Bailey (1961), who published a literature review, noted explanations of women's behaviors focused on the relationship between wives and husbands. Among researchers, the line of thinking focused on the notion that if husbands stopped drinking then spouses would subsequently exhibit severe psychopathology. Described as deeply disturbed, these women, because of their own psychopathology, selected spouses likely to be alcoholics (Bailey, 1961, 1967; Kogan & Jackson, 1965). Seminal research by Jackson (1954) heralded a shift from a psychiatric to a sociological focus through the theoretical lens of stress theory.

Stress and Coping Models

Jackson (1954) proposed that living with a person who is actively drinking, resulted in a stress-ridden family that might lead to a crisis reaction. As a participant observer, Jackson attended Al-Anon Family Group meetings. Al-Anon is a 12-step program for relatives and close friends, similar to Alcoholics Anonymous for persons working on sobriety. Based on observations, Jackson described a series of stages wives went through—denial, recognition, disorganization, escape, and ultimately reorganization of the family system—if an alcoholic partner became sober. Jackson's findings indicated that women exhibited signs of long-term stress, similar to family members living with a chronically-ill family member. A later study by Moos, Finney, and Gamble (1982) supported Jackson's findings. They found spouses of alcoholics reported a multitude of psychological and physiological symptoms, such as depression and anxiety. Further studies (Gorman & Rooney, 1979; Orford et al., 1975; Orford et al., 1998; Schaffer & Tyler, 1979) expanded the premise that spouses actively seek ways toward resolution of situational difficulties through coping styles. From these studies, a typology of coping styles was suggested, such as withdrawal within marriage including sexual activity (Orford et al., 1975; Gorman & Rooney, 1979), confrontation-discord (Orford et al., 1975; Schaffer & Tyler, 1979); tolerance, and protecting the drinker (Gorman & Rooney, 1979; Orford et al., 1998; Schaffer & Tyler, 1979).

Orford et al. (1998), in a cross-cultural study, described three styles for coping. These three styles of coping include (a) engagement with the drinker through the use of supportive and assertive behaviors; (b) tolerance of the drinking-related behaviors by

acceptance, self-sacrifice, and inactivity; and (c) withdrawal by avoiding and pursuance of independent activities. Hurcom et al. (2000) explained that Orford et al.'s (1998) findings challenged Al-Anon's traditional view that wives used two coping behaviors, referred to as enabling or withdrawing with love.

Psychosocial Perspective

According to Hurcom et al. (2000), the psychosocial model emerged in the 1960s. This model combined psychiatric theories, disturbed personality and decompensation, with the stress and coping models. Kogan and Jackson (1965), citing previous studies (Bailey, Haberman, & Alksne, 1962; Jackson & Kogan, 1963; Kogan, Fordyce, & Jackson, 1963), asserted that empirical evidence did not fully support the personality disturbance theoretical model.

Kogan and Jackson (1965) compared preexisting personality traits of three distinct samples (a) women whose husbands were actively drinking, (b) women whose husbands had maintained at least 12 months of sobriety, and (c) women whose husbands were nonalcoholic. They concluded that women whose husbands were actively drinking were more distressed than women whose husbands were sober or nonalcoholics. Findings did not support the personality disturbance model that suggested pathological personality traits led women to choose alcoholics as marriage partners. Based on findings, Kogan and Jackson recommended a psychosocial model, which blended both personality and situational variables.

Despite findings suggesting that women's reaction served as a function of their coping and adjustment to problems associated with drinking, the premise was promulgated that personality disturbances resulted from women's childhood experiences or the stress

from living with an alcoholic husband. Unfortunately, the psychosocial perspective still viewed women as different, "both personality and stress underline the occurrence of emotional disturbance in wives in alcoholic marriages" (Kogan & Jackson, p. 493).

Although merit exists in the development and study of explanatory models and theories for addiction, without some type of treatment, problematic behaviors escalate and family functioning deteriorates. Three family treatment models—family disease model, behavioral, and family systems theories—emerged in the last two decades and presently dominate substance abuse treatment.

Family Treatment Models

Family Disease Model

McCrady et al. (2003) explained that focus on the family from a disease model perspective was first documented by Cork in 1969. According to Gordon and Barrett (1993), the disease model attempts to eliminate the blame and shame of addiction. It embraces the notion that interplay of multiple factors—biological, psychological, social, and spiritual—lead to addiction. Wallace (2006) described a vicious cycle of AOD that leads to biological, psychological, social, and spiritual negative consequences, paving the way for more excessive use and often profound negative consequences.

Johnson (1973), in *I'll Quit Tomorrow*, contended alcoholics and family members exhibit the same set of behaviors, feelings of shame and low self-esteem, and defense mechanisms such as denial, displacement, and rationalization. The only difference is that one is physically affected by AOD and the other(s) is not. A spouse's psychological dependency on the relationship mirrors the substance abusers physiological and psychological dependence to alcohol or other drugs (Galanter, 1993; Schaef, 1986).

Counseling sessions, from a family disease model also known as the Minnesota Model, are conducted with client alone and with family member(s). McCrady et al. (2003) stated that counseling sessions focus on alcoholism as a disease; family members relinquish putting attention on the alcoholic and instead focus on changing themselves, and codependency. Codependence is the term used to describe "disease" of the family member. (p. 120)

Codependency. Morgan (1991) claimed the term codependency "most likely originated from the word 'co-alcoholic' when AOD dependencies were grouped together as 'chemical dependency'" (p. 721). According to Lyon and Greenberg (1991), contemporary and popular psychological literature embraced codependency as the "chic neurosis of our time" (p. 435). Clinicians used codependency as a construct to explained difficulties experienced by family members living with someone abusing substances.

Hurcom et al. (2000), citing others (Anderson, 1994; Gotham & Sher, 1995; Hands & Dear, 1994), and Cowan, Bommersbach, and Curtis (1995) acknowledged nebulous and broad descriptions typified the literature on codependency. Various definitions of codependency ranged from a psychosocial condition, an interpersonal style, an addiction to caretaking and relationships, a personality disorder, and a primary disease that could lead to death. Lacking an operational definition, Anderson (1994) noted that codependency is merely a bevy of highly diverse symptoms. Anderson asserted that the "codependency movement" (p. 683) is reminiscent of the disturbed personality theory of the 1950s when wives were painted as dependent and pathological.

McCrady et al. (2003) noted codependency remains a main construct in the family disease model. Rather than based on empirical research findings, characteristics of

codependency mainly stem from clinical understanding or personal experience. Without empirical support, criticism of codependency abounds. While the family disease model promotes parallel treatment for family members, the second family therapy treatment model, behavioral therapy, actively involves family members at the start of counseling sessions.

Behavioral Family Therapy

Fals-Stewart, O'Farrell, and Birchler (2004) explained that behavioral family therapy approaches are based on social theory, embracing concepts, such as reinforcement, reciprocity, and coercion. Behavioral family therapy's foundation rests with the belief that good communication between and among family members contributes to attaining and maintaining sobriety. The focal point of this approach is the building of support for sobriety while increasing family cohesiveness.

One example of behavioral family therapy approach is brief couple (or family) therapy (BCT), which views the person seeking treatment and spouse/significant other as partners to build a foundation for sobriety. Fals-Stewart et al. (2004) described BCT as a behavioral approach in which a more cohesive relationship with enhanced communication skills is developed. According to McCrady et al. (2003), family substance abuse is not viewed as the one and only cause of difficulties; rather, other family problems serve as antecedents to substance abuse. BCT works on the presumption that at the same time clients and family members alter maladaptive behaviors, facilitate new cognitive and behavioral coping skills, and offer positive reinforcement for abstinence (Ripley, Cunion, & Noble, 2006).

Another type of behavioral program, Community Reinforcement Approaches (CRA) developed by behaviorists Hunt and Azrin (1973), incorporates familial, social, recreational,

and occupational reinforcers to assist in the recovery process. The underpinning of CRA is that it re-arranges aspects of persons' lives so that a sober lifestyle is more appealing and rewarding than a lifestyle dominated by substance abuse (Smith, Meyers, & Miller, 2001). Edwards and Steinglass (1995) asserted that the work of Azrin and colleagues (Azrin, 1976; Azrin, Sisson, Meyers, & Godley, 1982; Hunt & Azrin, 1973) provide solid support for inclusion of family members.

Family behavioral therapy outcome studies. According to Edwards and Steinglass (1995), Hedberg and Campbell were among the first researchers to test behavioral treatments in an outpatient setting involving alcoholics and their families. Hedberg and Campbell's findings, published in 1974, suggested behavioral family counseling was effective in terms of abstinence. McCrady, Stout, Noel, Abrams, and Fisher Nelson (1991) compared various types of couples treatment—minimal spousal involvement, alcohol-involved spousal involvement, and alcohol-focused spouse involvement. Their findings support Azrin, (1976); Hunt and Azrin (1973); and Azrin, Sisson, Meyers, and Godley (1982) in which various pre-treatment aspects—drinking behavior, marital satisfaction, and psychological, social, and occupational functioning— improved at six months follow-up.

Based on a meta-analysis, Edwards and Steinglass (1995) claimed family-involved behavioral treatment approaches showed a varied picture of effectiveness. However, family-involved CRA studies consistently resulted in positive outcomes findings when compared with traditional individual approaches.

The third and final family therapy treatment model, family systems, explores the functions substance use serves within the family system. This model is explained in the next section.

Family Systems Model

McCrady et al., (2003) claimed that by the 1970s, family systems model began to play an influential role in the addiction field. Evolving from general systems theory, family systems emphasizes the functioning of the family as a whole rather than an individual within the family. The premise of this model is that families are systems of interconnected and interdependent individuals. Fundamentally, persons cannot be understood in isolation from each other.

From a family systems perspective, Lavee and Altus (2001) described substance abuse as a circular homeostatic process. The systems perspective views substance abuse as potentially serving a function within the family. Substance abuse not only serves a function but the abuse maintains the family's equilibrium and the family maintains the addictive behavior. According to Gordon and Barrett (1993), substance abuse and resultant patterns of family interactions revolve around the abusing family member. Family interactions, whether perceived as positive or negative, appear to be attempts at problem solving and maintaining family stability. Thomas and Corcoran (2001) explained that treatment focuses on communication, problem-solving, and other strategies promoting abstinence. Creating affirming family relationships that supports an environment of abstinence becomes the goal.

Family systems outcome studies. Edwards and Steinglass (1995) contended that Corder, Corder, and Laidlaw (1972), in the early 1970s, were among the first to report findings about family systems treatment approaches. They compared outcomes for clients

who participated in a couple-focused segment in an otherwise traditional inpatient program. Spouses were invited to participate in some portion of their family member's inpatient stay.

At six months post-discharge, clients whose family members participated in treatment demonstrated positive outcomes. These outcomes included higher levels of abstinence, attendance at follow-up treatments, participation in recreational activities, and employment than for clients who participated in a traditional inpatient program.

In the 1970s and 1980s family-involved outcome studies showed positive results in terms of effectiveness especially when compared to individual approaches or no treatment. Other variable, such as gender, investment in the relationship, and support for abstinence, produced varying results.

In a meta-analysis by Stanton and Shadish (1997), 15 studies indicated family-couple therapy yielded better outcomes when compared to nonfamily alternatives such as, individual counseling and peer support. They concluded that drug use post treatment decreased. Comparisons to family educational sessions, typically used as an approach in the family disease model, suggest family therapy produced better outcomes, in addition to attainment of higher rates of engagement and retention in treatment.

Abstinence was the most studied outcome in the majority of studies. Addiction professionals argue that a sole outcome does not truly paint a full picture of clients' and their families' lives post treatment. They put forth that a more inclusive picture is the clients' and family's quality of life (QOL).

Quality of Life

Overview

Parmenter (1994) noted the relative recent use of the term, QOL, as a measure of effectiveness of medical and other health related treatment services. A clear and concise definition and associated theoretical model defy consensus. Parmenter explained that QOL includes more than a person's health status, it encompasses a set of qualitative indices, such as functioning in everyday life and emotional well-being. Brown (1996) contended that QOL is subjective stemming from sociocultural influences and personal values. Consequently, Brown asserted QOL descriptions differ from culture to culture, subculture to subculture, and person to person. Fayers and Machin (2000) expressed a different point of view. They claimed researchers, rather than individuals, define QOL from their own perspective and subsequently allow an instrument's items to speak for themselves. Researchers tend to measure QOL on two distinct levels. One is a population or societal level, while the other is on an individual level.

Population-level perspective. From a population-level perspective, QOL is measured by economic, social, and environmental indicators. Flynn, Berry, and Heintz (2002) explained that the establishment of economic indicators occurred during World War I; whereas, environmental indicators commenced in the 1940s. Under the Johnson administration in the mid-1960s, a formal snapshot of social well-being occurred using a set of social indicators, which included health and illness, social mobility, physical environment, income and poverty, public order and safety, learning, science and art, and participation and alienation. Emerging in the 1980s and 1990s, communities described

overall QOL by tracking local social and economic conditions. Even though population-level QOL is noteworthy, this study focused on individual-level QOL.

Individual-level perspective. Fayers and Machin (2000) noted that although the distinct expression quality of life was not explicitly used, Aristotle referred to QOL as a sense of well-being and suggested happiness varies from person to person. By the mid-20th century, the WHO attempted to characterize QOL in terms of physical, mental, and social well-being, rather than exclusively as the absence of disease. In the 1960s, when the focus centered on QOL in terms of social indicators, Haas (1999) pointed to a shift that occurred from objective to subjective indicators when measuring an individual's QOL.

Testa and Simonson (1996) claimed the use of QOL as a measure of treatment efficacy steadily occurred. According to Zhan (1992), in the 1970s and 1980s, the research field exploded with the development and implementation of QOL instruments. Fayers and Machin (2000) noted that during this time period, early instruments, such as the Nottingham Health Profile, quantified general evaluation of health status, as well as providing a focus on physical functioning, physical and psychological symptoms, impact of illness, perceived distress, and life satisfaction. As time progressed, instruments intended for general use, regardless of the illness or condition, expanded to measure QOL as an endpoint in chronic and disease specific conditions, such as cancer, human immunodeficiency virus infection (HIV), multiple sclerosis, and cardiovascular and respiratory diseases.

Defining Quality of Life

Meeberg's (1993) literature review identified four critical features of QOL "(a) feeling of satisfaction with one's life in general; (b) mental capacity to evaluate one's own life as satisfactory or otherwise; (c) an acceptable state of physical, mental, social, and

emotional health as determined by the person referred to; and (d) an objective assessment by another that the person's living conditions are adequate and not life-threatening" (pp. 34-35). Haas (1999) asserted Meeberg's work as significant because it fit with the conceptualization of QOL in and across multiple disciplines such as, sociology, psychology, nursing, and medicine.

Haas (1999) defined QOL as a way to distinguish QOL from other related concepts of well-being, satisfaction with life, and functional status. This study adopted Haas' definition for QOL, which stated that measured QOL involves:

> A multidimensional evaluation of individuals' current life circumstances in the context of the culture and value systems in which they live and the values they hold. QOL is primarily a subjective sense of well-being encompassing physical, psychological, social, and spiritual dimensions. In some circumstances, objective indicators may supplement or, in the case of people unable to subjectively perceive, serve as a proxy assessment of QOL. (p. 219)

Distinguishing Quality of Life from Health-Related Quality of Life

Smith, Avis, and Assmann (1999) conducted a meta-analysis of two constructs—QOL and perceived health status—in chronic disease studies. They found QOL and perceived health status as distinct constructs from patients' perspectives. When rating QOL, Smith et al., noted that patients perceive QOL in terms of mental health and psychological functioning more than in terms of physical functioning. Patients viewed health status in terms of physical rather than mental health functioning. Since QOL and health status are distinct constructs, Smith and colleagues recommended that instruments measure either QOL or health-related functioning. Cohen, Mount, Tomas, and Mount (1996) contended

health-related QOL (HRQOL) focuses on disease rather than a person's experiences of illness.

Use of Quality of Life Indices for Addiction

While QOL research abounds for persons with chronic illnesses and mental and intellectual disabilities, less prevalent is the use of QOL indices to evaluate outcomes for persons and their families' postaddiction treatment (Longabaugh, Mattson, Connors, & Cooney, 1994; Foster, Powell, Marshall, & Peters, 1999; Longabaugh, Mattson; Smith & Larson, 2003). Rudolf and Watts (2002) asserted that the addiction research community rarely includes QOL indices in treatment studies. According to Donovan, Mattson, Cisler, Longabaugh, and Zweben (2005), studies focused on consumption and abstinence as primary outcomes. As Foster, Peters, and Marshall (2000) pointed out, measuring abstinence may have little relationship to the person's perceived QOL. Petry, Alessi, and Hanson (2007) explained that QOL indices "provide a common yardstick to assess individual and societal costs and benefits of interventions" (p. 307).

Noting the existence of over 7,000 QOL studies in the biomedical field (Donovan et al., 2005), a comprehensive literature review by Rudolf and Watts (2002) found only 15 studies that measured QOL in alcohol dependent persons and 6 studies examining persons with co-occurring, mental health and drug dependence, diagnoses.

Rudolf and Watts (2002) reported inconclusive findings about QOL of alcohol and drug dependent participants, in large part because different aspects of QOL were analyzed across studies. They contended ambiguity of the constructs, QOL and its differences from health-related QOL, led to inconclusive findings. In addition, they noted the small number of studies make it difficult to establish if certain variables such as age and gender, played a

role in QOL. The authors asserted that examining persons' problems from their own subjective views provides a richer picture of QOL, rather than simply using abstinence or reduced dependence as such measures.

Donovan et al.'s (2005) literature review included QOL studies of alcohol use disorders and treatment outcomes from 1993 to 2004. Similar to Rudolf and Watts' (2002) literature review, inclusion criteria consisted of: a) the phrase QOL as an outcome construct for persons diagnosed with alcohol use disorders; and/or b) the use of instruments considered by the authors to substantially measure persons' QOL. Donovan and colleagues identified a lack of accepted ways to conceptualize, define, and operationalize relevant QOL domains for AOD dependent populations. They reported that frequent or episodic heavy drinkers experienced a lower QOL. Persons considered as alcohol dependent experienced lower QOL than the general population, or than persons with other chronic health conditions. On the positive side, QOL ratings increased across treatment settings and with short- and long-term abstinence.

Donovan et al. (2005) further stated that overall, 12 different QOL assessment instruments were used in the 36 reviewed studies. However, 15 used a version of a health-related QOL instrument, Medical Outcomes Study (MOS) Health Survey, such as the Short Form (SF)-36, SF-20 or SF-12. The downside was that these health surveys lacked an operational definition of QOL.

A relatively recent study by Garg et al. (1999) set out to determine when persons received treatment for alcohol and/or drug dependence, if they were more likely to report impairment in functional status and QOL when compared to the general population. Using

a health-related QOL survey (MOS SF-36), findings showed patients had a lower emotional functioning score at baseline than the general population.

Peters et al. (2003) compared QOL in men and women who were misusing alcohol. They found that alcohol dependent men and women reported worse QOL than persons with lung, bladder, head, and neck cancers. In addition, Peters and colleagues reported that women's QOL was more impaired than their male counterparts. They suggested disturbed sleep patterns with depressive features as a reason. Peters et al. concluded that QOL was associated with abstinence. Similarly, Senbanjo et al. (2006) concluded that excessive alcohol consumption among methadone patients was associated with QOL impairment as measured by a health-related QOL instrument.

Smith and Larson (2003) opted to use an instrument—Multidimensional Index of Life Quality ([MILQ] Appendix A) specifically designed for persons with a chronic medical condition, cardiovascular disease. The capability to calculate an overall QOL summary score added to the uniqueness of this instrument, noted Smith and Larson.

Smith and Larson (2003) administered this instrument to 570 substance abuse clients in 6 detoxification centers and 7 outpatient facilities in Massachusetts. Findings suggested that in terms of physical functioning, it was similar to persons with other chronic conditions. Mental health functioning was lower.

Researchers appeared to agree that obtaining subjective perspectives of QOL makes sense. However, they consistently raised concerns about the lack of consensus regarding a specific definition of QOL and a formal theoretical model of the two constructs—QOL and health-related QOL. Because no QOL instrument for substance abuse or dependence exists,

studies employ generic or symptom specific instruments to measure both QOL and health-related QOL.

In the reviewed literature, researchers supported the use of instruments specific to the substance abusing population that measure consumption, abstinence, and QOL. While individual QOL measures gained strides over the last two decades, family QOL seems to be only at the beginning of the conceptualization process, noted Poston et al. (2003).

Family Quality of Life

The above mentioned studies presumed only one perspective about QOL exists—the person abusing AOD. Longabaugh et al. (1994) point out that different perspectives coexist, such as family members, the community in which the person resides, and the program responsible for treatment services.

Schrim (2006) suggested that the overwhelming nature of chronic conditions impacts the individual's and family's QOL. Increased stressors, whether perceived or real, can diminish QOL for all members of the family system. An improved QOL for the individual, family members' and the family system as a whole constitutes a reasonable outcome of treatment services. Therefore, it seems logical to assess QOL from the perspective of those closest to and who cares most about the individual. Family QOL studies, in terms of postaddiction treatment, are glaringly absent. Spouses' perceived QOL may differ considerably than individuals'.

It is likely that family members' QOL may be affected when they recognize an addiction problem, but do not possess knowledge or skills to appropriately intervene with their loved addictive behaviors. Zimmerman, Olsen, and Bosworth (2000) noted that

knowledge about the stages of change may help family members view the situation differently.

Stages of Change

Whether formally or informally, addiction professionals continually assess clients' motivation to stay in treatment and make necessary changes for long-term recovery. Prochaska and DiClemente's (1984) stages of change in their transtheoretical model described a process in which clients' progress through specific stages as they try to change patterns or behaviors that cause problems in their lives. For the purposes of this study, Prochaska and DiClemente's (1984) description of the action stage of change in their transtheoretical model provided the theoretical underpinnings for defining engagement. Adapting DiClemente's (2003) and Connors et al. (2001) work, engagement was defined as demonstrable changes in thinking and behavior, which reflect an individual's firm and clear decision or commitment to recovery.

Over the last two decades, Prochaska, DiClemente, and others examined the process of change and as a result of their research, developed a transtheoretical model of behavior change. Fundamentally, the transtheoretical model is a model of intentional change and decision making. The uniqueness of this model is that it focuses on intentional change by the individual, rather than primarily social influences on behavior or on biological influences on behavior. The transtheoretical model describes how persons intentionally modify problem behaviors, specifically addictive behaviors, or acquire positive behaviors.

Vellicer, Prochaska, Fava, Norman, and Redding (1998) clarified that the stages of change is the key organizing construct in the transtheoretical model. They further explained that each stage has a series of ten cognitive and behavior activities completed by the person

that facilitate change, and a series of outcome measures. The specific six stages in the transtheoretical model are as follows:

1. Precontemplation: no intention to change behavior in the foreseeable future. Many individuals in this stage are unaware or underaware of their problems.
2. Contemplation: people are aware that a problem exists and are seriously thinking about overcoming it but have not yet made a commitment to take action.
3. Preparation: combines intention and behavioral criteria. Individuals in this stage are intending to take action in the next month and have unsuccessfully taken action in the past year.
4. Action: individuals modify their behavior, experiences, or environment in order to overcome their problems. Action involves the most overt behavioral changes and requires considerable commitment of time and energy.
5. Maintenance: people work to prevent relapse and consolidate the gains attained during action. For addictive behaviors this stage extends from six months to an indeterminate period past the initial action.
6. Termination: changes are complete and no further work is required to prevent relapse. Persons emanate confidence and zero temptation to relapse. (Prochaska and Norcross, 2001, pp. 443-444)

Prochaska and Norcross (2001) explained that in the transtheoretical model, behavior change is a process that unfolds over the course of time, rather than as an event. The first three stages—pre-contemplation, contemplation, and preparation—precede the action stage, but contrary to intuitive sense, the stages of change mirror a spiral rather than a linear pattern (Prochaska, Norcross, & DiClemente, 1994).

Prochaska and DiClemente (1984) asserted that the stages of change appear to be more distinct in addictive behaviors than with other problems, such as obesity. As the person progresses from one stage to the next, intervention strategies and the therapeutic relationship between the client and addictions profession change, according to Prochaska and Norcross (2001). The challenge for addiction professionals is to identify which interventions and processes of change promote effective ways to move clients through the first three stages. Comfort, Loverro, and Kaltenback (2000) asserted that the spiral pattern is a source of frustration for the addictions professional, person in treatment, and family members as they all attempt to "synchronize clinical efforts with spiraling client engagement cycles" (p. 60).

Ockene et al. (1992) studied an intensive action-and maintenance-focused smoking cessation program for cardiac patients. Their findings suggested that if persons progress from the contemplative to the preparation stage in the first month of treatment, 41% move to the action stage by six months. In essence, smokers attempted to quit within a six month timeframe. When clients in AOD treatment move to the action stage by the time of discharge, they may experience positive post treatment outcomes. Relationships with family members may play a key role in attaining positive treatment and post treatment outcomes.

Theoretical Location

Overview

Social relationships foster a sense of belonging and subsequently play a key role in personal well-being. Levitt, Coffman, Guacci-Franco, and Loveless (1994) claimed previous studies provide compelling evidence demonstrating a link between close

relationships with significant others and perceived well-being. Many of the studies, noted Takahashi (2005), focused on dyadic relationships—child-mother, child-friend, adolescent-romantic partner, and the marital relationship.

Literature on adult attachment followed two separate but conceptually related perspectives—a developmental approach focusing primarily on children and parents and social psychological or close relationships between partners. In order to make sense of the impact family involvement imparted in AOD treatment and QOL, this study drew from attachment, social network, and role theories.

Attachment Theory

Bowlby, noted Bettmann (2006), emphasized the powerful tendency for people to make and maintain social and intimate relationships with significant others. Bowlby's (1969) seminal work on attachment theory primarily focused on understanding the child-caregiver relationship. Bowlby, as cited by Bettmann, views humans as bound by their relationships, particularly infants with their caregivers. Bowlby contended these relationships are crucial to a child's psychological development, sense of security, and physical survival.

Attachment behaviors appear when an infant or child feels threatened or insecure. These attachment behaviors take the form of crying, clinging, and calling out, and are used to re-gain emotional reassurance. The infant or child actively engages in activities to re-establish contact with an attachment figure, which in most cases is the mother. Feeling secure, the child implements strategies to maintain contact and proximity with a caregiver, who ideally provides comfort and reassurance in times of stress. Despite progress with

infant-child attachment, not until the last two decades did attachment theory extend to adult relationships.

Berman and Sperling (1994) defined adult attachment as the "stable tendency of an individual to make substantial efforts to seek and maintain proximity to and contact with one or a few specific individuals who provide the subjective potential for physical and/or psychological safety and security" (p. 8). For adults, these physical and psychological safety and security needs are met through adult attachment relationships with a romantic partner, friends, peers, and family members.

Researchers, as cited by Bettmann (2006), posited attachment security is a key feature of relationships throughout the lifespan. Bettmann claimed that adults who experience marital separation and death of a spouse exhibited similar patterns as seen in infants separated from their attachment figures. These behaviors consisted of protest, despair, and detachment/reintegration, not unlike children comparable to crying, clinging, and calling out.

Bowlby (1969) emphasized that attachment behaviors emerge during times of ill health or loss, situations that can occur within a family living with AOD abuse. Browne and Shlosberg (2006) explained that under conditions of threat, the need to seek closeness and proximity to an attachment figures emerges. Caregiving behaviors by persons in close proximity to the threatened individual appear as a complementary function to attachment behavior. The attachment picture changes when substance abuse enters. The client's attention shifts from his/her significant other, who is also referred to as the attachment figure, to his/her drug(s) of choice. The resultant shift causes an attachment injury.

Johnson, Makinen, and Millikin (2001) explained that an attachment injury occurs when one person in a relationship violates an expectation that comfort and support will be forthcoming in times of distress or crisis. The actual event is far less important when compared to the sense of abandonment, betrayal of trust, and inaccessibility of one's partner. Not only is substance abuse keeping families apart, but also perceived threats of isolation and separation, particularly at times of increased vulnerability (Johnson et al., 2001). Negative emotional responses, if not attended, Johnson et al. noted, undermine the repair process. Only when a family member(s) actively participates in treatment, rather than parallel services, can new patterns of interaction develop and restore the security of the emotional attachment.

Social Network Theory

According to Takahashi (2005), social network theory has a wider perspective than attachment theory. Attachment theorists primarily focus on the lives of infants and young children. Social network theorists focus on understanding social interactions on the lives of adolescents and adults.

Social network theory assumes that individuals naturally develop a variety of social relationships with others beyond the child-mother figure. This theory recognizes that across the lifespan, individuals experience close relationships with multiple significant others, including both family and non-family members. Over the course of one's lifetime, relationship changes come about when individuals encounter new attachment figures, lose significant others, or reevaluate old attachment figures.

Kahn and Antonucci (1980) first articulated the convoy model in an attempt to explain the movement of significant relationships in an individual's life. From the

perspective of the social support convoy model, an individual is surrounded by a network of social relationships. This network serves caring and protecting functions through the exchange of support between an individual and members of the convoy.

Conceptualized by Antonucci (1986) as a series of concentric circles, the convoy diagram places persons closest to an individual in the inner circle (Figure 1). The meaning of closest presumes that "life without them would be hard to imagine" (p. 10). Kahn and Antonucci (1980) suggested that these relationships are likely to be with persons who are bound to the individual through affective and role-related ties, such as spouses and parents. The outer circles consist of relationships that are less close but still important. The convoy model assumes that a) each person has a framework of significant relationships; b) the framework represents a hierarchical structure; and c) over the lifespan the framework is dynamic.

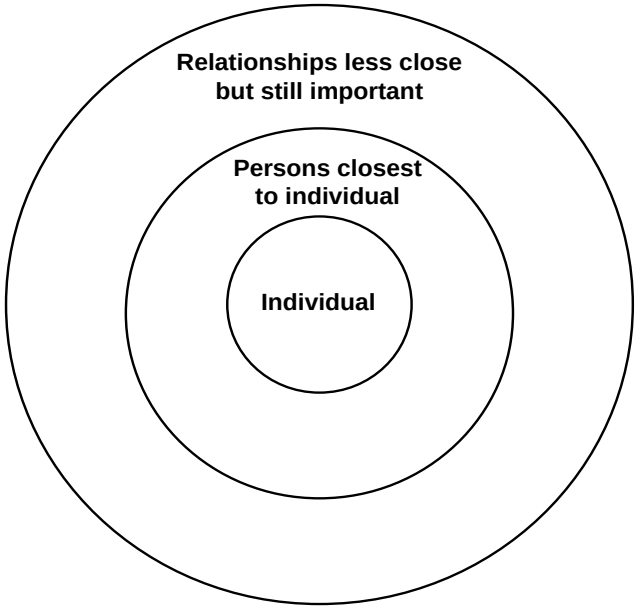

Figure 1. Convoy diagram for mapping a social support network.

Takahashi (2005) asserted that most researchers concur that people need others to flourish and survive. Levitt (1991) noted these relationships are governed by shared expectations established through familiarity, closeness with one's significant other(s), and dependent on feedback from a significant other(s).

From an addictions viewpoint, researchers and addiction professionals generally agree that involving family members in the treatment process produces positive results for a client and his/her family system. However, addiction often changes the social relations comprising the convoy. The convoy diagram pictorially illustrates close and not-so-close relationships to the client. Subsequently, relationships that produce the most influence in an individual's life are easily recognized and acknowledged. Using this information, the individual and addiction professional can embrace others within the inner circle as partners in the treatment and recovery processes as the individual is exiting the role of alcoholic or addict and assumes a new self-identity.

Role Exit Theory

Ebaugh (1988) described role exit as "the process of disengagement from a role that is central to a one's self-identity in a new role that takes into account one's ex-role" (p. 1). Fundamental to Ebaugh's work is the belief that exiting a role is a basic social process. Ebaugh explained that instead of norms and self-identity relating to the role one currently holds instead norms and expectations are associated with the previous role. The framework for role-exit process consists of four stages (a) doubts—questioning current role; (b) seeking alternatives—evaluating costs and benefits of an alternative role; (c) turning points—defining moments that force one to seriously consider an alternative role; and (d) creating

the ex role—removing oneself from a previous role, while experiencing alternative role expectations.

Stephens (1991) described a specific set of behaviors associated with a master drug-addict role in the heroin subculture. The author suggested that addicts assume a set of behaviors and relations associated with the drug-addict role, such as little social concern, adoption of deviant values, a commitment to street language, and manipulative relationships. These same set of behaviors could easily be extended to other types of addicts and alcoholics. Stephens (1991) maintained that when an addict experiences role strain, the greater the likelihood of drug use cessation or exiting the addict role.

Ebaugh (1988) suggested significant others influence movement through the exit process. She stated significant others serve vital functions such as reality testing, enhancing the rewards of staying, suggesting alternatives, and ease in shifting reference groups. Involving key family members in the treatment process from the outset may facilitate their loved ones exiting process.

Ebaugh's (1988) sociological perspective on exiting and Prochaska's and colleagues work on stages of change were strikingly similar. The seeking alternatives phase (Ebaugh, 1988) and contemplation stage as described by Prochaska, and DiClemente, (1984), Prochaska, DiClemente, and Norcross (1992) and Prochaska, Norcross, and DiClemente (1994) reflect the same tasks—analysis of pros and cons of the current behavior and the costs and benefits of change.

Ebaugh's next phase, turning point, and Prochaska and DiClemente (1984); Prochaska et al. (1992); and Prochaska et al. (1994) preparation stage both observe an increased commitment to the new role. On one hand, the client looks at alternative roles,

such as “recovering alcoholic”, while on the other hand, prepares a change plan. Creating an ex role and the action stage produce both a new self identify and behavior patterns.

In observing for behaviors of engagement in the treatment process, Ebaugh (1988) may argue that perhaps attention should also be placed on disengagement instead of engagement. Disengagement, as one aspect of role exit, reflects a complex process involving shifts in who is placed in inner and outer circles of the convoy diagram (Figure 1), friendship networks, and one’s own self-identify.

Tying It All Together

The plethora of information available about addiction is mind-boggling. Sources ranged from governmental agencies to scientific investigations. Due to the scope of the study and the size of the subject matter, the literature review was limited in its approach. However, one salient point occurred with consistency and clarity. Addiction most directly affects a primary group—spouses, partners, parents, and children.

Problems first surface within the family structure or behind closed doors. In the early stages of addiction, the individual offers reasonable excuses for his/her unacceptable behaviors. The strains on family relationships dissipate spontaneously as periods of sobriety or socially acceptable substance use occur. Because patterns of unacceptable behaviors may be sporadic, family members fall into a sense of complacency as they believe the individual’s denial and rationalization systems (Orford, 1992).

Anyone living with someone abusing AOD knows all too well the chaos it causes. According to Wegscheider-Cruse (1989), as escalation occurs, the substance abuse becomes the center of attention for family members leading to maladaptive coping strategies and predictable and compulsive behaviors of the entire family system. Unfortunately, a ten-year

gap exists between onset of abuse and obtaining treatment (NIH News, 2007). This ten-year gap can be narrowed and adverse family consequences and instability drastically reduced when treatment services focus on the entire family system.

AOD abuse, as a multi-faceted, complex and chronic condition, requires comprehensive approaches and ongoing support services. To date the healthcare system primarily provides addiction treatment from an acute rather than a chronic care perspective. Services from an acute care viewpoint focus on the individual seeking services rather than the family system. Acute care services are short-term, episodic, and curative in nature (McLellan et al., 2000). Services for chronic conditions emphasize ongoing individual and family- and community-centered approaches to maintain wellness or keep symptoms in remission.

The overall design of the healthcare system focuses on effective and efficient treatment of acute rather than chronic conditions. Larsen (2006) claimed the healthcare system was never designed to address the complexity of needs for persons with chronic conditions. According to Larsen, acute care healthcare professionals view clients from its narrow window of care. Rarely does one entity simultaneously manage the illness experience of the client and family.

Today cost containment strategies in a managed care environment significantly influence treatment modalities, and frequency and duration of addiction treatment services. The trend over the last 20 years reflects the provision of addiction treatment services in the least restrictive setting, for a predetermined amount of time, and a specific time lapse between treatment episodes. In addition, managed care and other third party insurers do not pay for ongoing support services such as transportation and child care costs. It is

increasingly frustrating for treatment providers to experience denial or severely limited treatment services, based on the premise that addiction is an acute rather than a chronic condition.

Studies do not empirically support short episodic services for treatment of addiction; a cure is unlikely from a single course of treatment. Previous large-scale national outcomes studies and clinical investigations provided strong supporting evidence that services extending, at the very least 3 months and, in some cases, up to 12 months elicited positive outcomes (Broome et al., 1999; Fiorentine et al., 1999). In the majority of outcome studies, positive outcomes included abstinence, as well as ceasing illegal activity and full-time employment.

A portion of the outcome studies examined the construct engagement. Definitions of engagement varied among studies and included a number of aspects such as intensity of treatment, duration, and client- and program-level characteristics. For purposes of this study, engagement included demonstrable changes in thinking and behavior, which reflected an individual's firm and clear decision or commitment to recovery.

Pragmatically speaking, engaging the family system generally elicited positive benefits and outcomes for clients and families (Corder et al., 1972; Edwards & Steinglass, 1995; Stanton & Shadish, 1997). In terms of the family disease model, codependency as a way to explain spouses, partners, or parents seemingly dysfunctional behaviors is not realistic. By ascribing to the strengths-based perspective, the treatment process must focus on strengths rather than limitations family members bring into treatment and the recovery process.

Codependency is reminiscent of the disturbed personality theory, placing the blame on others. Parallel treatment creates a disservice for the family because it robs the family system from partnering together for long-term recovery and eventual improved QOL.

Addiction professionals who use a strengths-based counseling model explore reasons why family members may be reticent about partnering in the treatment process. They may find that attachment injury is the central issue. Attachment injury, characterized as abandonment or a violation of trust, damages the attachment bond between and among family members, blocking the family's ability to take steps to restore trust. Johnson, Makinen, and Millikin (2001) explained resolving attachment injuries potentially restores the security of the emotional attachment of the family system.

From strengths-based and family-centered perspectives, family treatment rather than parallel treatment may offer the best chance for resolution. Essentially, treatment approaches focus on something good generated by attachment injuries. Through the active resolution of attachment injuries, the process offers a possibility of improving family relationships. As well, from a strengths-based perspective, rather than viewing family members as codependents and enablers, they are assets and partner in their loved one's treatment and recovery process. Family-centered home based approaches, such as RAH, builds on strengths and emphasizes resources and capabilities of the individual and family members.

Particularly of note, the current literature did not link family involvement and engagement as defined in this study. Family involvement not only facilitates engagement in the treatment process, but also promotes clients' moving through various stages of change and exiting their old role as addict or alcoholic. Ebaugh's (1988) role exit work is similar to

Prochaska and DiClemente's (1984) seminal research on the stages of change. Ebaugh's writings on the process of role exit, aptly described from a sociological perspective the process of becoming an "ex" (p. 1), while Prochaska and DiClemente described the process and behaviors of changing into someone who is recovering from addiction.

A gap emerged in the literature review. While a plethora of QOL studies for persons with other chronic illnesses existed in the literature, few evaluated QOL postaddiction treatment for individuals and their families. Examining QOL challenges the addiction field to look beyond abstinence as an indication of treatment effectiveness. Satisfaction with one's QOL can promote a tremendous sense of joy and fulfillment and contribute to family cohesiveness. As Schrim (2006) noted, "effectively intervening in the treatment process of clients and families with chronic illness is crucial to making QOL a certain outcome" (p. 217).

This chapter offered an extensive literature review on two aspects of treatment effectiveness: a) the effect of duration of treatment and family involvement on clients' engagement in treatment; and b) QOL post treatment for clients and family members. Chapter Three defines the proposed study and includes the study's methodology.

CHAPTER III METHODOLOGY

This chapter presents the methodological design of the study that was used for examining client engagement and QOL as treatment outcomes.

Purpose of the Study

The study compared two addiction treatment approaches—family-centered home based (hereafter referred to as RAH) and traditional treatment. The study occurred at a regional behavioral health program in Southeastern Pennsylvania housed within a larger multimodality parent community behavioral health organization. The behavioral health program offers various treatment services and supports for clients with addiction and co-occurring disorders and their family members. While the majority of clients reside in Bucks and Montgomery counties, the program also serves Berks, Chester, Delaware, Lehigh, Northampton, and Schuylkill counties.

The primary purpose of this study was to determine if RAH resulted in different outcomes than traditional treatment. The study examined to what extent RAH, family involvement, and intensity affected client engagement in the treatment process. Using the same sample, the study examined QOL for clients who participated in RAH and traditional treatment and their key family members post treatment.

Research Design

The study utilized a causal comparative, quasi-experimental design. A causal comparative design best fit the study's purpose as this design permitted group comparisons and provided an estimate of the magnitude of the relationship among variables (Mertens, 1998). Admission to RAH and traditional treatment occurred prior to the start of this study.

Since random assignment did not occur, the ability to experimentally manipulate variables was impossible. As such, results cannot prove a cause-and-effect relationship.

Hypotheses

1. H_0 1a: RAH has no effect on engagement when controlling for other variables.
2. H_0 1b: Family involvement has no effect on engagement independent of clients' participation in RAH or Conventional groups when controlling for other variables.
3. H_0 1c: Intensity of treatment has no effect on engagement independent of clients' participation in RAH or Conventional groups when controlling for other variables.
4. H_0 2a: QOL summary scores will not vary post discharge for clients who participated in RAH versus Conventional groups.
5. H_0 2b: QOL summary scores will not vary post discharge for key family members whose loved one participated in RAH versus Conventional groups.

Variables

Engagement. Variable and Hypothesis Relationship: As a dependent variable (DV), engagement related to H_0 1a, H_0 1b, and H_0 1c.

- Theoretical Definition: Changes in thinking and behavior that reflect an individual's firm and clear decision or commitment to recovery.
- Operational Definition: Recovery behaviors demonstrated by a client that indicate the action stage of change. Some of these behaviors included: client obtains a sponsor or other support person, calls sponsor, and attends some form of a 12-step meeting on a regular basis.

- Measurement: A checklist "*Recovery Behaviors Indicative of Action Stage of Change*" (Appendix B) guided decisions regarding clients' engagement in the treatment process. Documentation in progress notes and/or discharge summaries in selected case records were reviewed by a panel of two addiction professionals and this researcher using this checklist.

RAH. Variable and Hypothesis Relationship: As an independent variable (IV), RAH related to H_0 1a.

- Definition: RAH is a 24 hours and 7 day per week coaching program that encompasses family, individual, and professional to navigate the most efficient and least restrictive path for recovery from AOD abuse or dependency.
- Measurement: Participation in RAH required a yes or no observation.

Family involvement. Variable and Hypothesis Relationship: As an IV, family involvement related to H_0 1b.

- Theoretical Definition: The amount of time a family member, with and without the client present, and addiction professional interacted in face-to-face sessions and telephone calls over the duration of treatment.
- Operational Definition: Sum of minutes key family member(s), and key family member(s) and client together, interacted with an addiction professional in face-to-face sessions and telephone calls over the duration of treatment.
- Measurement: Using progress notes and/or discharge summaries, family involvement was calculated by using the following formula: sum of minutes a key family member(s), and key family member(s) and client together, interacted with an addiction professional via face-to-face sessions and telephone calls

during the time in RAH, or loved one's participation in various treatment modalities such as outpatient, partial hospital program, and residential services.

Intensity. Variable and Hypothesis Relationship: As an IV, intensity related to H_0 1c.

- Theoretical Definition: The amount of time clients interacted with addiction professionals while in RAH or traditional treatment.
- Operational Definition: Contact time between a client and an addiction professional in face-to-face, group sessions and telephone calls divided by the number of days in treatment or duration.
- Measurement: In a review of documentation in progress notes and/or discharge summaries in selected case records, intensity was calculated by using the following formula: sum of minutes a client and addiction professional interacted via face-to-face, group sessions and telephone calls during a client's length of stay, the sum was then divided by the number of days in treatment (duration). For example, 120 minutes/5 days = 25 minutes = treatment intensity for a client.

Quality of life. Variable and Hypothesis Relationship: As a DV, QOL related to H_0 2a and H_0 2b.

- Theoretical Definition. QOL is defined as a "multidimensional evaluation of individuals' current life circumstances in the context of the culture and value systems in which they live and the values they hold. Primarily a subjective sense of well-being, QOL encompasses physical, psychological, social, and spiritual dimensions" (Haas, 1999, p. 219).

- Operational Definition. The Multidimensional Index of Life Quality ([MILQ] Appendix A) was used to measure respondents' QOL. The 35 item instrument measured respondents' degree on satisfaction of nine domains. Each item was scored on a 7-point scale reflecting the respondents' degree of satisfaction with that item, ranging from 1 = very dissatisfied to 7 = very satisfied. There were four items for each domain; one item was included in two domains. The nine domains were:
    1. Mental health;
    2. Physical functioning;
    3. Physical health;
    4. Cognitive functioning;
    5. Intimacy;
    6. Social functioning;
    7. Productivity;
    8. Relationships with health professionals; and
    9. Financial status.
- Measurement. A QOL summary score was calculated by multiplying the MILQ the first domain mental health score by two and adding the second domain, physical functioning score. (Avis, Smith, & Feldman, 1994)

Examining Engagement as a Treatment Outcome

Sampling Method

To examine client engagement as a treatment outcome, a non-probability sampling approach was used. Secondary data obtained from two matched archival case record

groups, RAH and Conventional, over a 90-day treatment timeframe was analyzed. Macnee and McCabe (2008) stated that the premise underlying a matched sample rests on obtaining better estimates of differences by preventing other characteristics from causing confusion that could make comparison difficult.

By means of an electronic record-keeping system, the director of the behavioral health program and designee identified case records for the RAH group. This group participated in RAH and simultaneously took part in various combinations of traditional modalities, for example (a) outpatient only; (b) outpatient and partial hospital program; (c) residential only; (d) residential and outpatient; and (e) residential, partial hospital program, and outpatient.

The Conventional group included case records of clients who participated in traditional modalities only. I had no involvement in the identification process of this research study.

Director and Designee Involvement

Although the director coordinated the identification of RAH case records, the process of identifying and securing case records was turned over to a designee. The designee possessed skills that aided in this process.

The designee who holds a Masters in Counseling Psychology, worked as an addiction professional for the last 10 years in a variety of AOD treatment settings. Second, the individual had the knowledge and proficiency concerning how to locate progress notes and discharge summaries for data review as well as, retrieve documentation not available through the electronic case record system. Lastly, the designee worked for a pharmaceutical

company in marketing research, and expressed familiarity with research processes, which adhered to stringent sampling procedures.

Exclusion Criteria

Prior to selecting appropriate RAH and Conventional groups' case records, the director, designee, and myself thoroughly discussed exclusion criteria. Exclusion criteria for this study included the following:

- Clients less than 14 years old;
- Admission to outpatient or residential modalities for the sole purpose of receiving detoxification services only;
- Cases that terminated for non-clinical reasons, such as relocation, incarceration, or lack of funding to continue in treatment modalities;
- No equivalent case record from the Conventional case records pool;
- Involvement in Mobile Engagement Services (MES); and
- Client referred to another agency or treatment facility within 90 days of start of treatment.

A synopsis of discussions that led to the identification of exclusion criteria follows:

- Few clients less than 14 years participated in RAH. Since the program serves primarily adults, finding a comparative case record for the Conventional group was unlikely.
- The addiction field views detoxification services as stabilization of an individual's physical well-being and not a treatment modality.
- Cases terminated for non-clinical reasons provided little or none of the needed information for this study.

- In order to construct a representative sample and at the same time strengthen the credibility of the findings, RAH and Conventional groups' case records had to resemble each other as much as possible. This study excluded any RAH case records when comparative traditional case records did not exist.
- Involvement in MES was to some extent similar to RAH. MES informally links individuals to treatment modalities, such as outpatient and assists families in learning how to respond to addiction, whereas, RAH formally links clients and families to treatment modalities. Although a substantial number of clients received MES in the behavioral health program, very few cases were found in RAH, making matching between RAH and comparative Conventional groups case records difficult.
- When clients were referred to another addiction treatment or mental health (MH) facility the focus of documentation generally shifted away from treatment to referral processes, such as reasons and justifications for referral, determining funding, and timeframe for referral.

Identification of Case Records

RAH group. The designee initially identified 88 RAH cases spanning a period of three years—beginning January 1, 2005, when RAH started, up to December 31, 2008. After reviewing the 88 RAH cases, the designee pared the sample to 42 case records. Reasons for paring the sample included: (a) sometimes case records provided little to no documentation concerning the number of minutes clients and/or key family members participated in face-to-face sessions and/or telephone calls with addiction professionals; (b) the 90 day timeframe for treatment was not met; RAH abruptly ended after 2-3 weeks; or (c)

met at least one exclusion criterion, for example terminated for non-clinical reasons, such as relocation, incarceration, or lack of funding to continue in treatment modalities. The designee scrutinized the 42 RAH case records based on demographics and other characteristics such as gender, age, primary drug of choice, co-occurring disorder, and number of prior treatment episodes.

Conventional group. The director, designee, and myself conducted discussions as to the most useful matching criteria for analysis purposes. For example, initially we believed treatment modalities such as outpatient, partial hospital program, and residential should be matching characteristics. After the designee reviewed some case records, it was determined that specific treatment modalities should not be included, as the treatment codes in the electronic database and hard copy reflected inaccuracies and misleading information. These inaccuracies surfaced as a result of a dual electronic and hard copy documentation system, which existed for a period of time.

The director, designee, and I discussed including the number of treatment episodes as a matching characteristic. Case record documentation revealed misleading information dependent upon the length of history or the clients' level of honesty in reporting prior treatment episodes. The number of prior treatment episodes changed to a dichotomous variable, "yes," if had previous treatment and "no," if did not have treatment.

Another discussion point focused on co-occurring disorders. Some case records listed one specific MH diagnosis, while others had combination diagnoses listed such as depression and borderline personality disorder. These multiple diagnoses created confusion when deciding the most accurate and correct diagnosis. In other cases, the individual received a rule out MH diagnosis, which indicated that psychiatric staff required more

assessment data before making a conclusive diagnosis. The director, designee, and I decided to change co-occurring diagnosis to a dichotomous variable, where "yes" represented any type or number of MH diagnosis including rule out, as designated by the DSM-IV-TR (American Psychiatric Association, 2000). To assure a greater number of potential matches that accurately reflected clients in both RAH and Conventional groups, the following five matching characteristics were identified:

- Gender: Male/Female
- Age range: 30 years or younger and 31 year and older
- Drug of choice:
    - Opiods primary
    - Alcohol primary
    - Marijuana primary
    - Polysubstances
- Co-occurring diagnosis (yes/no)
- Prior AOD treatment (yes/no)

Randomized Selection

For each RAH case, an electronic database search generated a list of comparative Conventional case records based on matching characteristics. The number of comparative Conventional case records far exceeded RAH case records. For every one RAH case record, 3-10 comparative Conventional case records matched the RAH case record. These Conventional case record matches were electronically generated in no particular order and with no specificity by date in treatment, alphabetical, or any other distinguishing characteristic.

The next step involved using a die to pick a Conventional case record for inclusion in the sample. The number on the die toss represented which Conventional case record on the list should be matched to the RAH case record. Table 2 illustrates how the designee matched RAH to Conventional case records.

Table 2

An Example of Potential Matches for a RAH Case Record from a Pool of Comparative Conventional Case Records

RAH Case Record and Potential Matches with Conventional Case Records	
RAH Group	Conventional Group
RAH Case Record #1 Characteristics	Comparative Case Records
Gender: Male	1. Smith, John
Age Range: Less than 30 years old	2. Hamlin, Rye
Drug of Choice: Alcohol	3. Johns, Jeremiah
Co-Occurring Disorder: Yes	
Prior AOD Treatment: Yes	

Note. Fictitious names were used.

If the electronic database search chose only three Conventional case records, then the designee threw only one die. When the die number came up one, two, or three, that particular Conventional case record was matched to RAH Case Record One.

Often a match did not occur on the first toss. In these cases, the designee rolled a die several times until the die matched one randomly selected Conventional case record. If the electronic database search generated more than six Conventional case record matches, then the designee used two dice and added the numbers to pick the specific Conventional case record.

Occasionally, the designee could not find a match for a RAH case record because the Conventional case record was (a) selected as a match for another RAH case; (b) not able to be located; or (c) lacked progress notes and/or discharge summary. In these cases, the designee eliminated the case record and a die or dice was thrown again to obtain another potential match.

Early in the selection process the designee recognized that in the RAH group, clients participated in residential treatment; however, none in the Conventional group participated in residential treatment. Although a large comparative Conventional case record pool existed, a limited number participated in residential services and of these, few matched all criteria. When cases matched criteria, none of the clients followed through in outpatient modality at this facility. The selected case records for the Conventional group did not include clients who participated in residential modality.

Confidentiality

When the designee identified all of matched RAH and Conventional group case records, the same number was assigned to each matched set. For example, RAH 1 and Conventional case record 1 up to RAH 42 and Conventional case record 42 were matched sets. The designee placed applicable copies of progress notes and discharge summaries in a manila folder, and blacked out all identifying information.

The designee designed and placed a face sheet in the front of the manila folder listing characteristics such as gender, age, age range, primary drug of choice, documentation of a mental health disorder, and prior AOD treatment. The face sheet included the first and last date clients had interaction with an addiction professional and the last date of the 90-day timeframe.

Procedure for Determining Intensity and Family Involvement

Intensity. This researcher reviewed 88 case records' progress notes and/or discharge summaries within a 90 day treatment timeframe and calculated intensity values. To obtain intensity of treatment for clients in RAH and Conventional groups, the number of minutes or contact time clients and addiction professionals interacted with each other was summed and entered into Microsoft Office 2007 Excel spreadsheet. Duration in treatment was calculated. Dividing contact time by duration gave an intensity value for each client who participated in RAH and any combination of traditional treatment modality—outpatient, partial hospital program, and residential.

Documentation in paper case records did not always include the number of minutes addiction professionals interacted with clients and family members. To address this data gap, the designee reviewed five randomly selected case records from RAH and traditional modalities, and then calculated the average number of minutes per week clients and family members interacted with addiction professionals. In instances when exact contact time was unattainable, average contact time was used instead. Approximately 20% (16) case records were paper files and average contact time was calculated.

Family involvement. A similar procedure was used to calculate family involvement. Case records' progress notes and/or discharge summaries were reviewed. Family involvement was calculated by summing contact time a key family member(s) interacted with an addiction professional, and contact time a key family member(s) and client interacted jointly with an addiction professional. For family involvement contact time was not divided by duration; family members were not primary clients in traditional modalities and duration was not applicable.

The same as with calculating intensity, when exact contact minutes were unattainable, average contact time was used instead. Approximately 20% (16) case records were paper files and average contact time was calculated.

Procedure for Determining Engagement

Panel Members

A panel of two addiction professionals and this researcher determined client engagement in the treatment process. One of the panel members served as a full time therapist in a behavioral health program within the parent organization and had over 10 years of addiction counseling experience. The individual earned a Master's of Science in Counseling Psychology in 2005 and certification in addiction counseling (CAC) from the Commonwealth of Pennsylvania in 1997. This first panel member recognized two RAH case records and one from the Conventional group. In all three situations, a different panel member reviewed the case records.

The second panel member had over 20 years of experience in behavioral health. This individual earned a Master's in Social Work (MSW) and certified as a Substance Abuse Counselor in the State of New York since 1998. Since the individual was new to the organization, he did not recognize any case records.

This researcher served as the third panel member. Over the last 20 years, I worked with clients in a variety of behavioral health settings as a registered nurse and/or addictions professional and, am familiar with components of progress notes and discharge summaries. No case records were familiar.

Case Record Review Steps

The case review process encompassed four steps.

1. Together, panel members reviewed the guideline, "*Recovery Behaviors Indicative of Action Stage of Change*" (Appendix B) prior to reviewing case records.
2. Together, panel members reviewed 25% of the RAH and Conventional groups' case records.
3. Separately, each panel member reviewed an assigned list of remaining case records over a course of three weeks.
4. After panel members reviewed their list separately when a panel member was unsure about deciding engagement or no engagement, then the other two panel members reviewed the case record.

Step one. Using DiClemente's (2003) and Connors et al. (2001) work on stages of change in the addiction treatment process, a list of behaviors indicative of the action stage of change, specifically for persons participating in addiction treatment modalities was created. The checklist served to guide panel members rather than dictate how to determine client engagement in the treatment process.

The panel reviewed the list of recovery behaviors, discussed, and clarified each item, as needed. For example, "periods of abstinence" was clarified as to mean no AOD use for the previous 30 days. The panel chose 30 days because an assessment instrument commonly used by professionals in the addiction field poses the question about use in the last 30 days.

Step two. After panel members voiced similar understanding about the intent of the "*Recovery Behaviors Indicative of Action Stage of Change*" guideline (Appendix B), the

panel reviewed matched RAH and Conventional groups' case records. After each panel member reviewed the same case record and presented a decision of engagement or no engagement, discussion ensued concerning reason(s) for the decision. Panel members continued to review case records until all panel members were in agreement. Constancy and consensus occurred with regularity after the panel reviewed approximately 10 case records. The panel, together, reviewed 21 (25%) case records from both groups (RAH and Conventional).

Based on case record reviews in step two, members identified additional recovery behaviors. For example, panel members added "willingness to stay on prescribed psychiatric medication regime" to the list of behaviors. The members believed that staying on prescribed medications indicated a willingness to be an active partner in the treatment process.

Panel members believed that "verbalization about emotional difficulty" and "subsequently asking for help with the difficulty" indicated two additional behaviors reflective of the action stage of change. Isolation can sometimes precede relapse and by asking for help, the panel believed the individual demonstrated engagement in the treatment process.

The panel also included "participation in a spirituality or faith-based other than a 12-step group." Spirituality or faith-based groups focus on encouraging members to rely on a power greater than them similar to the 12-step philosophy. Finally, the panel inferred that if a client regularly attended 12-step meetings, then the individual admitted being an alcoholic or addict.

Step three. This researcher divided the remaining 53 case records among the three panel members. Panel members reviewed their assigned case record over three weeks.

Step four. After each panel member completed a review of assigned case records, members met to discuss questions in determining engagement or no engagement. Each member identified approximately 2-3 case records where the progress notes and/or a discharge summary did not lend itself to easily determine engagement or no engagement. The other two panel members reviewed existing documentation with subsequent discussion. All panel members concurred to eliminate two RAH case records due to lack of documentation in determining engagement in the treatment process. The two matching Conventional group case records were also eliminated. The final number of case records for analysis was 82, 41 from RAH and 41 from Conventional groups.

Null Hypotheses Testing

Client Engagement

For this study, Stata Statistical Software: Release 10 (2007) was the software of choice for descriptive and inferential data analyses. Logistic regression was used to test the first three null hypotheses—the effects of RAH, family involvement, and intensity on client engagement. Logistic regression is an extension of multiple regression and best suited when a DV, such as engagement, is a dichotomous rather than a continuous or quantitative variable. By using a predictive model, logistic regression finds the best fitting model to describe the relationship between client engagement and a set of independent variables (Hamilton, 1992). In this study, 12 independent or explanatory variables included:

- X_1 = intensity
- X_2 = family involvement

- X_3 = RAH
- X_4 = gender
- X_5 = age range
- X_6 = opiods primary drug of choice
- X_7 = alcohol primary drug of choice
- X_8 = marijuana primary drug of choice
- X_9 = polysubstances
- X_{10} = co-occurring disorder
- X_{11} = prior AOD drug treatment
- X_{12} = residential

As described earlier, after the sampling process the distribution for residential modality (X_{12}) was unequal and this treatment modality was used as a control variable.

Based on the logistic regression output, odds ratios were calculated. The advantage of using odds ratios was that it explained how likely (the odds) clients demonstrated engagement in treatment relative to the explanatory variables.

Examining Quality of Life as a Treatment Outcome

The secondary focus of the study analyzed QOL post treatment. Secondary data were obtained from clients who were in RAH and Conventional Groups and their key family members. Although addiction staff obtained limited data, procedures for collecting the data are detailed in the following section.

Procedure

Interviewing Process

The director requested that two addiction staff persons contact clients and key family members by telephone from RAH and Conventional groups. If a former client answered the telephone, verbal permission was obtained to ask a series of questions using the MILQ instrument. The staff person then asked the former client to identify a key family member willing to answer the same questions on the MILQ instrument. Staff made three attempts over a span of three weeks to contact former clients and key family members. The researcher did not participate in the telephone interviewing process.

Confidentiality

At the conclusion of telephone interviews, both addiction staff persons provided to this researcher QOL domain scores for clients and key family members in a Microsoft Office 2007 Excel spreadsheet. Key family members were assigned the same identifier as their loved one; however, addiction staff persons used the prefix, KFM, as the family member identifier. No key family members' identifying information was provided to this researcher.

Quality of Life Instrument

Description

Avis et al. (1996) developed a QOL instrument, the MILQ, for patients diagnosed with chronic cardiovascular disease, ranging from hypertension to congestive heart failure. Smith and Larson (2003) used this same instrument for persons with substance abuse and compared their QOL scores to those for patients with cardiovascular disease. The MILQ is designed to provide QOL scores for multiple domains and an overall summary score. Smith

and Larson (2003) noted that this QOL instrument is the only one they reviewed that included an algorithm to calculate a QOL summary score.

Avis et al. (1996) described the MILQ as a 35-item instrument covering nine major domains that included

1. Mental health;
2. Physical functioning;
3. Physical health;
4. Cognitive functioning;
5. Intimacy;
6. Social functioning;
7. Productivity;
8. Relationships with health professionals; and
9. Financial status.

Respondents scored each item on a seven-point scale reflecting their degree of satisfaction.

The QOL instrument exhibited several unique aspects. First, it measured an individual's level of satisfaction in each domain area, and second, included items to measure what was important to the individual. According to Avis et al. (1996), most QOL instruments measure perception of satisfaction and ignore importance to the individual. Third, the ability to calculate an overall summary score of QOL added to the usefulness of this instrument for this study.

Avis et al. (1996) reported internal consistency was 0.76 or higher and two-week test-retest reliability coefficients were 0.73 or greater for 7 of the 9 domains. In terms of

validity, all nine domain scores and the index score were significantly correlated with self-reported health status.

Reasons for Choosing MILQ

Prior to this study and as part of program evaluation processes, an assigned addiction staff member conducted post treatment interviews at 1, 3, 6, and 12 months with clients discharged from residential modality. An agency written instrument measured outcomes in terms of current consumption of AOD, perceived mental health functioning, social and family relationships, and employment and financial status. The director wanted to expand post treatment interviews to other modalities besides residential and use a psychometrically tested instrument for post treatment.

After examining a number of QOL instruments, the director chose the MILQ for four reasons.

1. Ease of completion and scoring as it took less than 15 minutes to complete. Administering a lengthy battery of questions or multiple instruments is impractical in a small community-based agency. Limits in resources result in staff performing multiple tasks (Franken & Hendricks, 2001). These observations made by Franken and Hendricks were true for this program.
2. The MILQ provided an algorithm for computing a summary QOL score. According to Smith and Larson (2003), few instruments provided this capability.
3. The MILQ measured QOL from two vantage points, satisfaction and importance of domains to the individual. An individual may express dissatisfaction with an area of life affected by a chronic illness; however, this area may be unimportant to the individual. MILQ data extracted satisfaction and importance.

4. Since addiction-specific QOL instrumentation does not exist, the MILQ appeared to be a fit, given that Avis and colleagues (1996) suggested this instrument may be useful for other chronic conditions, such as addiction.

Although no literature reported implementing this particular instrument for family members, overall, the domains and items appeared relevant to key family members. For purposes of this study, data analyses focused on QOL summary scores rather than individual domains.

Null Hypotheses Testing for QOL

Addiction staff contacted a limited number of former clients and key family members, which precluded using inferential statistics to draw conclusions about the population based on the sample. No QOL-related hypotheses (as described earlier in this chapter, null hypotheses four and five) testing were accomplished in this study.

Institutional Review Board Approval

The researcher obtained initial permission from Indiana University of Pennsylvania's Institutional Review Board in September 2008. By filing a renewal application, the study received renewal approval in August 2009. In addition, the director of the behavioral health program provided permission to conduct the study (Appendix C).

Limitations of the Research Design

Internal Validity

Nine of the 12 explanatory variables had the potential to influence results of this study (a) gender, (b) age range, (c) opiods primary drug of choice, (d) alcohol primary drug of choice, (e) marijuana primary drug of choice, (f) polysubstances, (g) past AOD treatment,

(h) co-occurring diagnoses, and (i) residential. Keeping the aforementioned explanatory variables constant, it decreased threats to internal validity.

Differential selection affected internal validity of this study. Only those who personally opted to pay participated in RAH. The fee associated with RAH excluded individuals who desired to participate, but possessed no means to pay for this type of approach. Although not examined, the cost associated with RAH caused sample homogeneity in terms of ethnicity, race, education, and socioeconomic status. Matching addressed differential selection as a threat to internal validity. Kazdin (1998) described matching as a grouping of subjects on the basis of similarity on one specific or a set of characteristics. Matching did not substitute for random assignment; rather it provided tremendous advantages because of the impossibility of random assignment. As Kazdin (1998) noted "subjects at each level of the characteristic appear in each group and the groups do not differ on the characteristic prior to treatment" (p. 94).

A second strategy to address threats to internal validity included using logistic regression as the statistical test. Regression analysis controlled for (a) gender, (b) age range, (c) opiods primary drug of choice, (d) alcohol primary drug of choice, (e) marijuana primary drug of choice, (f) polysubstances, (g) past AOD treatment, (h) co-occurring diagnosis, and (i) residential.

The last strategy involved randomly selecting case records for the Conventional group from a larger pool of approximately 200 case records. Random selection eliminated director or designee bias by choosing only the best records, for example clients who demonstrated engagement throughout the treatment process.

History may threaten internal validity especially in terms of examining a person's QOL. A delirious event, such as divorce, death of a significant person, or unemployment may affect QOL. Insulating respondents from outside influences was an impossible and improbable task.

External Validity

The formation of a panel of experts addressed experimenter effect. All panel members had similar AOD counseling experiences and understood how both RAH and traditional modalities were provided to clients and family members. Procedures for inter-rater reliability decreased threats to external validity.

Summary

For many years, the major focus of addiction treatment emphasized decreasing the consumption of AOD use and ameliorating the deleterious effects of AOD abuse on multiple levels—individual, family, and society. A spectrum of treatment modalities such as outpatient, partial hospital program, and residential exists in the addictions field. Evidence suggested treatment modalities assist individuals in changing destructive behaviors, maintaining abstinence, and avoiding relapse.

According to McCrady et al. (2003), throughout the addiction literature, professionals concur the family plays a central role in the etiology, treatment, and ongoing recovery process. Copello et al. (2006) asserted when family members support their loved one, a greater chance for sobriety results. Addiction professionals in traditional treatment typically start with an "individual focused" approach. Client and/or addiction professionals invite key family members to join the treatment process when deemed appropriate.

RAH began a few years ago in a regional behavioral health program. This approach views the family as a legitimate unit for intervention and focuses on the dynamics within the family as a whole and within a community, not merely the individual within the family. The methodology allowed this researcher to objectively measure engagement in treatment and QOL post treatment, rather than rely on anecdotal information from staff. Chapter Four presents results of the study.

CHAPTER IV RESULTS

Purpose

This study compared outcomes of AOD treatment offered in a behavioral health program in Southeastern Pennsylvania. The study analyzed secondary data obtained from two archival case record groups, RAH and Conventional, using a causal comparative design that answered the following research questions:

1. Does engagement vary for clients participating in RAH versus Conventional groups?
2. Does family involvement affect engagement differently for clients participating in RAH versus Conventional groups?
3. Does intensity of treatment affect engagement differently for clients participating in RAH versus Conventional groups?
4. Does quality of life vary post discharge for clients who participated in RAH versus Conventional groups?
5. Does quality of life vary post discharge for key family members whose loved one participated in RAH versus Conventional groups?

This chapter provides descriptions of the sample, dependent, and explanatory variables. It also presents results from inferential analyses used to test three null hypotheses.

Sample

Matching Characteristics

The sample for this study consisted of 82 archived case records of clients who received AOD treatment from 2005 to 2008. One half of the clients were in the group that participated in RAH while simultaneously participating in various combinations of

traditional modalities, outpatient, partial hospital program, and residential. The remaining half was part of the Conventional group that solely participated in two combinations of traditional modalities that included a) outpatient only, and b) outpatient and partial hospital program. RAH and Conventional groups were matched using five characteristics:

- Gender.
- Age range.
- Drug of choice.
- Co-occurring diagnosis.
- Prior AOD treatment.

Description of Sample

Gender and age. Males were predominately represented within the sample. Ages ranged from 18 to 77 years with a mean age of 30.2 years. Thirty-four out of 82 or 41.4% were between 20 to 24 years old. For comparative purposes, clients were grouped into two distinct age groups, ≤ 30 and ≥ 31 years old.

Drug of choice. The most frequent used drug was alcohol, then opiods, polysubstances, and marijuana. Drugs of choice were matched in both RAH and Conventional groups, but differed within age groups.

- Alcohol: 22.20% in ≤ 30 age group and 53.50% in ≥ 31 age group.
- Opiods: 40.74% in ≤ 30 age group and 10.7% in ≥ 31 age group.
- Polysubstances: 18.50% in ≤ 30 age group and 28.60% in ≥ 31 age group.
- Marijuana: 18.50% in ≤ 30 age group and 7.10% in ≥ 31 age group.

Table 3 provides a summation of matching characteristics for RAH and Conventional groups.

Table 3

RAH and Conventional Groups Matched by Five Characteristics

Matching Characteristics		RAH (n = 41)	Conventional (n = 41)
Gender	Male	73.17% (30)	73.17% (30)
	Female	26.83% (11)	26.83% (11)
Age Range	≤ 30 years	65.85% (27)	65.85% (27)
	≥ 31 years	34.15% (14)	34.15% (14)
Drug of choice	Alcohol	31.71% (13)	34.15% (14)
	Opiods	31.71% (13)	29.27% (12)
	Polysubstances	21.95% (9)	21.95% (9)
	Marijuana	14.63% (6)	14.63% (6)
Co-Occurring	Yes	87.80% (36)	87.80% (36)
Diagnosis	No	12.20% (5)	12.20% (5)
Prior AOD Treatment	Yes	85.37% (35)	85.37% (35)
	No	14.63% (6)	14.63% (6)

RAH and Conventional Groups: Participation in Traditional Treatment Modalities

As Table 4 shows, 37 out of 41 (90.24%) in the RAH group simultaneously participated in various combinations of traditional modalities. Unlike the RAH group, no one in the Conventional group participated in any combination of residential modalities (Modalities 3, 4, and 5).

Table 4

Number of Clients in RAH and Conventional Groups Participating in RAH Only and Various Traditional Modalities

		Traditional Modality					
Groups	RAH Only	1[a]	2[b]	3[c]	4[d]	5[e]	Total
RAH	4	12	9	9	3	4	41
Conventional	0	32	9	0	0	0	41
Total	4	44	18	9	3	4	82

Note. [a]Modality 1: outpatient. [b]Modality 2: outpatient and partial hospital program. [c]Modality 3: residential only. [d]Modality 4: residential and outpatient. [e]Modality 5: residential, partial hospital program, and outpatient.

When the Conventional group was generated, attempts were made to select case records where clients participated in any combination of residential modalities. As described in Chapter Three these attempts failed. Although a large case record pool existed that included clients who participated in residential, a limited number of these residential cases matched all characteristics. When case records were successfully matched none of the cases showed clients who participated in outpatient services at this facility.

Treatment Intensity

Calculating Duration

For purposes of this study, duration was defined as length of stay for clients in RAH and Conventional groups. In the RAH group, all clients' duration was 90 days. In the Conventional group, mean duration was 33 days in Outpatient (Modality 1), and 11 days in partial hospital program (Modality 2).

Calculating Intensity

As detailed in Chapter Three intensity was the degree of interactions between a client and an addiction professional. To obtain intensity of treatment for clients in RAH and Conventional groups, I summed the number of minutes or contact time clients and addiction professionals interacted with each other. Dividing contact time by duration gave an intensity value for each client in RAH and a particular treatment modality and various combinations of outpatient, partial hospital program, and residential. For example, Client A and B may have experienced 500 minutes with an addiction professional, but for Client A, the 500 minutes was over a period of 90 days; whereas Client B's duration spanned 10 days. Client A's intensity of treatment was less (5.5 contact minutes per day), than Client B (50 contact minutes per day).

Clients in the RAH group interacted with addiction professionals a mean intensity of 8.56 contact minutes per day. As shown in Table 5 when clients in the RAH group simultaneously participated in traditional modalities, the mean intensity ranged from 1.26 to 12.54 contact minutes per day depending on the modality. For the Conventional group mean intensity was 12.96 and 36.35 contact minutes per day for outpatient and partial hospital program, respectively.

Table 5

Mean Intensity Per Day in Minutes for Clients Participating in RAH Only and Various Traditional Modalities

		Traditional Modality				
Groups	RAH Only	1[a]	2[b]	3[c]	4[d]	5[e]
RAH	11.43	1.26	8.98	12.54	4.33	9.76
Conventional	0	12.96	36.35	0	0	0
Total	11.43	14.22	45.33	12.54	4.33	9.76

Note. [a]Modality 1: outpatient. [b]Modality 2: outpatient and partial hospital program. [c]Modality 3: residential only. [d]Modality 4: residential and outpatient. [e]Modality 5: residential, partial hospital program, and outpatient.

Family Involvement

For the purposes of this study, family involvement was defined as contact time between a key family member(s) and an addiction professional and key family member(s) and client together with addiction professionals. I calculated family involvement by summing contact time a key family member(s) interacted with an addiction professional, and contact time a key family member(s) and client interacted jointly with an addiction professional.

RAH Group

Family members were viewed as partners in the treatment process and played a critical role in the RAH group. Family members interacted with addiction professionals a multiplicity of times over a period of 90 days. Family members continued ongoing interaction with RAH addiction professionals even when their loved ones participated in traditional modalities. Table 6 illustrates an analysis of family involvement by key family members, and key family members and clients jointly.

Table 6

Mean Contact Time Family Members and Clients Interacted with Addiction Professionals

Individual(s) Interacting with Addiction Professionals	Mean Contact Time Minutes per Week	
	RAH	Conventional
Key Family Member	70	0.0
Family and Client Jointly	37	2.5
Family Involvement	107	2.5

Key family members interacted with addiction professionals nearly two-thirds (63.67%) more often than key family members and clients jointly (36.33%). Mean family involvement in the RAH group was 107 minutes per week.

Conventional Group

Unlike the RAH group, approximately two-thirds (65.85%) of family members in the Conventional group experienced no interaction with addiction professionals. Table 6 shows when family members and clients together interacted with addiction professionals mean family involvement was 2.5 minutes per week.

Engagement

For the purposes of this study, the definition of engagement encompassed demonstrable changes in thinking and behavior, which reflected an individual's firm and clear decision or commitment to recovery (DiClemente, 2003, p. 187; Connor et al., 2001, p. 25). As detailed in Chapter Three using a list of behaviors indicative of the action stage of change a panel of two addiction professionals and myself determined if clients demonstrated engagement in the treatment process based on documentation in case records. The panel agreed that slightly more than one-half or 43 out of 82 (52.43%) demonstrated

engagement, while the remaining 39 (47.56%) did not demonstrate engagement in the treatment process. Group totals of 65.85% of RAH and 31.70% of Conventional groups demonstrated engagement.

Quality of Life

Summary Scores-Clients

Using the MILQ instrument, this study examined QOL for clients and key family members. After three attempts, staff had only contacted 25% (21) of the 82 clients. The mean summary QOL score for 13 clients in the RAH group was 66.53, while the mean summary QOL score for the Conventional group was 72.50. Both scores were slightly higher than the mean (63.75), in a study conducted by Avis et al. (1994), which measured QOL for patients with various forms of cardiovascular disease.

Since a higher percentage of RAH clients demonstrated engagement in the treatment process, I presumed that behaviors indicative of engagement would continue post treatment to improve and/or enhance clients' QOL. Results showed the opposite. There are several possible explanations why opposite findings occurred, which will be discussed in Chapter Five.

Summary Scores-Key Family Members

This study also examined QOL scores for key family members. Fewer than 13% (11) responded to the survey, eight were in the RAH and three in the Conventional groups. RAH family members had a mean QOL summary score of 64.30, whereas in the Conventional group it was 71.60. Scant data led to inconclusive results about clients' or key family members' QOL.

I expected the QOL scores to be higher for key family members who were in the RAH group because they were an integral part of the treatment process and presumably relationships strengthen and communication patterns improved as a result of participating in RAH. As with clients QOL summary scores the opposite resulted; possible reasons will be discussed in Chapter Five.

Due to the lack of responses the two QOL research questions (Questions 4 and 5), noted at the beginning of this chapter, were not sufficiently answered and as such hypothesis testing was impossible. The following section presents an analysis to discover the best fit and parsimonious model to describe relationships between engagement and a set of explanatory variables.

Inferential Analysis

The final phase of analyses involved logistic regression that quantitatively tested three null hypotheses and demonstrated that statistically significant relationships existed among variables. The three null hypotheses were:

1. RAH has no effect on engagement when controlling for other variables.
2. Family involvement has no effect on engagement independent of clients' participation in RAH or Conventional groups when controlling for other variables.
3. Intensity of treatment has no effect on engagement independent of clients' participation in RAH or Conventional groups when controlling for other variables.

The remaining sections of this chapter provide descriptions of the step-by-step manner used to test these three hypotheses. These descriptions include (a) summary of variables, (b) multi and univariate analyses, (c) variable determination to create a best-fitting

model, (d) methods for assessing the adequacy of the model, and (e) conditional effects plots.

Summary of Variables

Using Stata Statistical Software: Release 10 (2007), all variables were summarized including the dichotomous dependent variable, engagement, and the following explanatory variables: (a) intensity, (b) RAH, (c) family involvement, (d) gender, (e) age range, (f) drug1 (opiods primary), (g) drug2 (alcohol primary), (h) drug3 (marijuana primary), (i) drug4 (polysubstances), (j) co-occurring disorder, (k) past AOD treatment, (l) and residential. No cases were dropped because of missing values on any of the variables. As detailed earlier in this chapter, the variable intensity was relative to contact time and duration. Since intensity subsumed duration, it was excluded as an explanatory variable.

Only clients in the RAH group participated in residential. Since distribution was unequal between RAH and Conventional groups, residential was used as a control variable as noted by yes/no. By adding residential as a control variable an opportunity was presented to examine if this specific modality had an effect on engagement.

Exploring the Model

Relative to soundness of the model, multivariate regression was initially performed using all explanatory variables believed to predict engagement. Normality of both continuous explanatory variables as well as symmetry of the dependent variable was assumed. Initial regression results suggested statistically significant relationships were existent among family involvement, gender, and drug3 (marijuana primary) with engagement. But it also became evident through preliminary tests that distributional problems, multicollinearity, and influential cases warranted further investigation as to

uncover potential problems with the model. Thus, techniques for regression criticism were executed and detailed in the following section.

Regression criticism. Regression criticism revealed four problems—two distributional problems and two influential cases. The first distributional problem was nonnormal distribution of continuous explanatory variables, intensity and family involvement. In the second distributional problem, symptoms of multicollinearity among several explanatory variables were revealed. A third and fourth problem revealed that at least two influential cases had the potential to change regression results. To attain a statistically sound model, these four problems were examined and addressed before testing hypotheses.

Evaluating normality of explanatory variable intensity. According to Hamilton (1992), normal distributions of variables are the exception rather than the rule. An independent continuous variable may not be normally distributed, either because it simply does not have a normal-bell shape, or because its values are bounded, creating a skew. Hamilton stated that some statistical procedures, such as logistic regression, assume that sample data come from a normally distributed population. Since this type of statistical test optimally works when variables follow normal distribution, the following section describes exploratory methods and normality tests used to evaluate if the sample came from a normally-distributed population. In the first step, summary statistics were checked for approximate normality of the continuous explanatory variable, intensity.

Summary statistics. Assessing symmetry graphically, Figure 2 illustrates the distribution of intensity had a positive skew and light tailed.

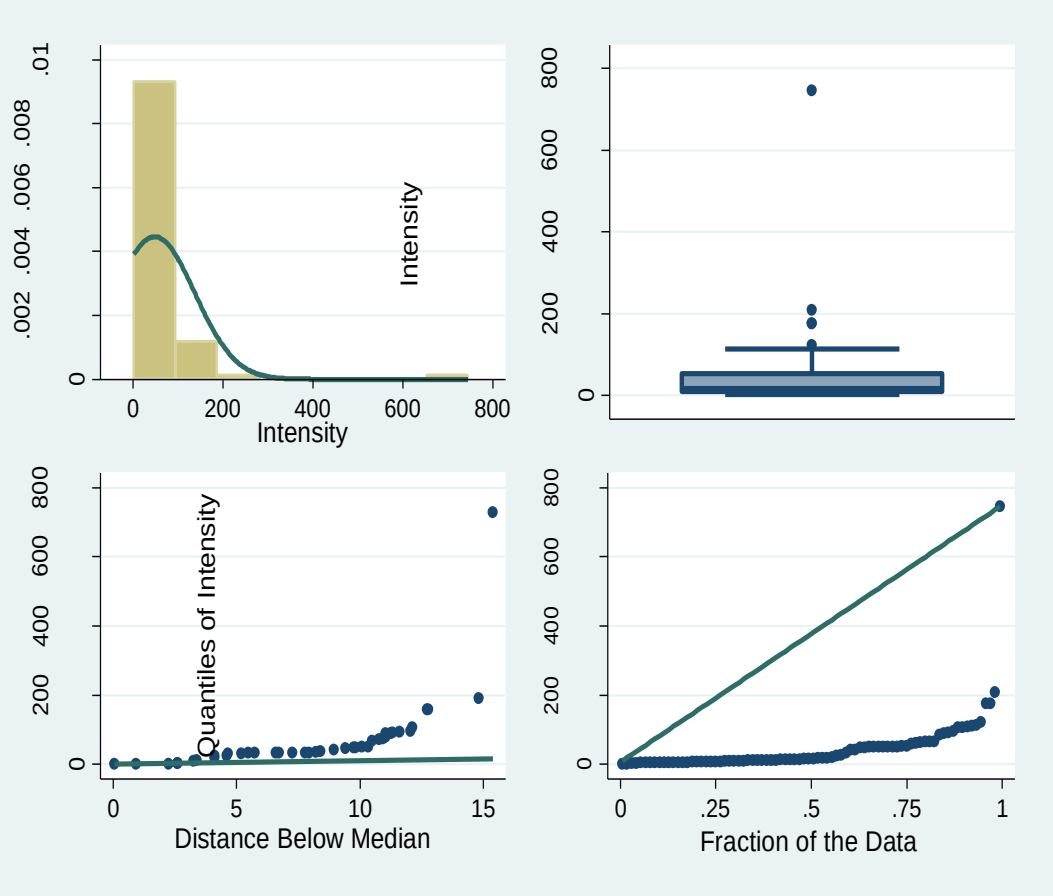

Figure 2. A combination of a histogram, and box, symmetry and quantile plots summarizing symmetry and distribution of the variable intensity.

The mean (47.37) and median (16.61) for intensity were dissimilar, which indicated a nonnormal distribution. A distribution was dissected that checked for approximate normality. Midsummary values migrated away from the median of intensity, which indicated the distribution became progressively more skewed as the values moved farther out into the tails. Since the mean (47.37) was greater than the median (16.61), the distribution had a positive skew.

Hamilton (2004) asserted that skewed distributions can become symmetrical and nearly normal when nonlinear transformations are used. Using logarithmic transformations provided a means to meet at least one of the underlying assumptions of regression, for

example, explanatory variables are measured without error. Tukey (1977), as cited by Hamilton (2004), suggested using the ladder of powers as a guide when "choosing transformations to change the distributional shape" (p. 127).

For the sample data, using the ladder of powers, a statistically insignificant chi square (χ^2 [$\chi 2$ = .47, Probability > χ^2 = .00]) indicated the log of intensity was significantly nonnormal. Nine histograms of transforms of intensity according to the ladder of powers were generated, which showed that the log transformation closely resembled a distribution that better approximated a normal distribution.

***Transformation*.** The log transformation q = 0 power transformation (the log of the variable) was performed. Subsequently, the explanatory variable, intensity, became the log of intensity, hereafter referred to as log_intensity, to improve the fit of the logistic regression model.

After the transformation, the mean (3.07) and median (2.81) of log_intensity appeared closer than before transformation. Figure 3 shows that, although not perfect, log_intensity distribution appeared more symmetrical than intensity and approximated a normal distribution better than the positively skewed intensity distribution.

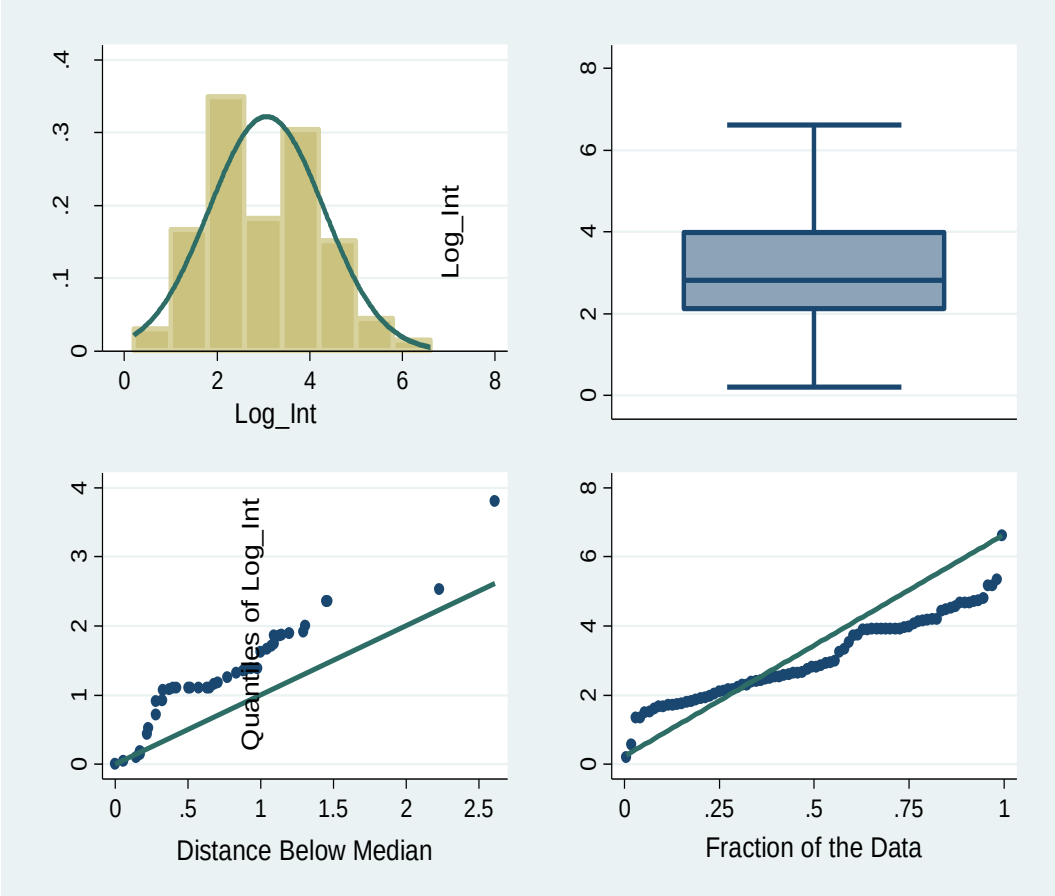

Figure 3. A combination of a histogram, and box, symmetry and quantile plots summarizing symmetry and distribution of the variable log_intensity.
Note: Log_intensity = Log_Int.

Evaluating normality of explanatory variable family involvement. Similar to intensity, exploratory methods and normality tests were used to evaluate if family involvement came from a normally-distributed population. Summary statistics checked for approximate normality.

***Summary statistics*.** As previously discussed, in a normal distribution a common value exists for the mean and median. For family involvement, the mean (705.61), and median (280), were dissimilar, revealing a nonnormal distribution. Graphically, Figure 4 illustrates that the variable, family involvement, had a positive skew and light tailed.

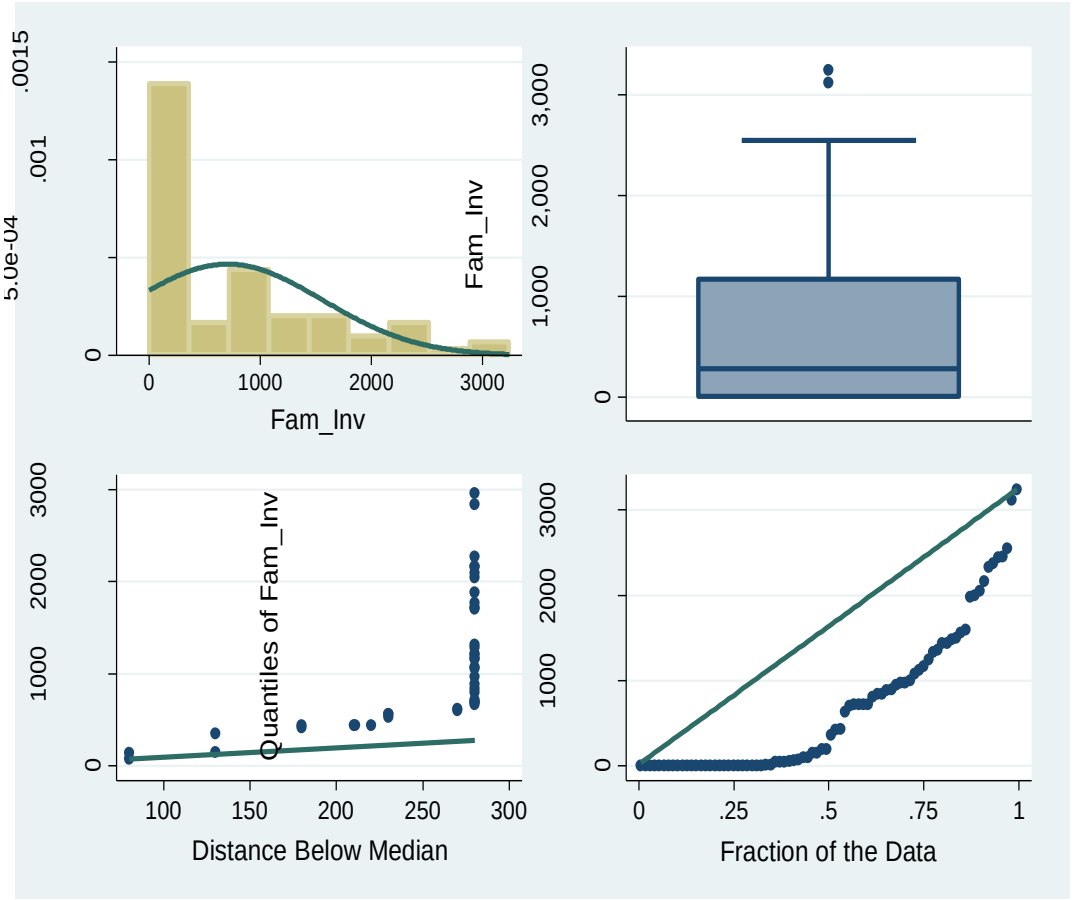

Figure 4. A combination of a histogram, and box, symmetry and quantile plots summarizing symmetry and distribution of the variable family involvement.
Note: Family involvement = Fam_Inv.

Normality tests. After testing for normality, all powers generated a statistically significant nonnormal distribution. The nonnormal distribution may be explained by the fact that extreme observations can exert a disproportionate influence on the χ^2 statistic.

Transformation. Histograms and normal curve overlays for family involvement by transformation showed that no transformations approximated a normal distribution. The explanatory variable of family involvement remained the same.

Evaluating normality of dependent variable engagement. Because violations of normality may also arise when the distribution of the dependent variable is significantly

nonnormal, engagement was tested for symmetry. The distribution of engagement was relatively symmetrical as both halves of the histogram were approximated mirror-images of one another. The number of cases indicating both engagement and no engagement appeared with almost equal frequency, where engagement = 43 cases and no engagement = 39 cases. The dependent variable, engagement, was a good candidate for logistic regression.

Model Building—Variable Determination

Checking variables for multicollinearity. Because regression criticism suggested the existence of potential problems with multicollinearity, all variables were fully examined. Hamilton (2004) explained that multicollinearity causes variables to measure the same phenomenon under study or suggests the same information that ultimately affects the prediction results in regression analyses. Variance Inflation Factor (VIF) is a measure of collinearity and measures the impact of multicollinearity among explanatory variables, while the tolerance (1/VIF) explained what proportion an explanatory variable's variance is independent of all other variables.

Hamilton (1992) stated that when variables are uncorrelated with each other, both VIF and 1/VIF values are one. However, if a variable is very closely related to one or more other variables, the 1/VIF goes to zero, and the VIF becomes large making regression impossible. High 1/VIF ($\geq .60$) can make the results of the regression more stable. According to Hamilton, multicollinearity makes the estimates of the coefficients less precise and potentially unreliable.

As shown in Table 7, because explanatory variables drug1, drug2, drug3, and drug4 were dummy variables, drug4 (polysubstances) was not included. Table 5 illustrates that

1/VIF values of < .60 posed concerns about multicollinearity among RAH, family involvement, and all reported drugs of choice.

Table 7

Variance Inflation Factor and Tolerance Values for Explanatory Variables

Variable	VIF	1/VIF
RAH	3.09	.32
Family Involvement	2.80	.36
Drug1(Opiods)	1.89	.53
Drug3 (Marijuana)	1.81	.55
Drug2 (Alcohol)	1.74	.58
Residential Treatment	1.61	.62
Log_Intensity	1.34	.75
Age Range	1.29	.78
Past AOD Treatment	1.28	.78
Co-Occurring Disorder	1.19	.84
Gender	1.05	.95
Mean VIF	1.74	

Note: VIF = variance inflation factor; 1/VIF = tolerance values for explanatory variables.

Drugs of choice. When performing regression analyses of various combinations of drug1, drug2, drug4, and excluding drug3 (Marijuana), the combinations consistently remained statistically not significant. On the other hand, when drug3 was introduced into the model with different combinations of drug1, drug2, and drug4, it was consistently statistically significant at the p = .05 level when all other variables were held constant. As a

result, the individual dummy variables associated with types of drugs (drug1, drug2, drug3, and drug4), were combined and a new variable, drug3_yn (primary use of marijuana, yes or no) was generated to simplify the model.

RAH and family involvement. In Table 5, VIF values were > 2.5 and 1/VIF < .60 for RAH and family involvement, which posed concerns for multicollinearity. A point-biserial correlation coefficient calculation determined the extent to which RAH and family involvement were closely linked.

Similar to Pearson product-moment correlation, the usefulness of point biserial correlation is that one variable (RAH), was dichotomous while the other variable (family involvement), was continuous. Comparable to Pearson product-moment correlation values, the point-biserial correlation coefficient was constrained between -1 and +1. In this sample, the correlation coefficient r_{pbi} =.79 indicated a strong relationship between the two variables, which supported the low VIF and 1/VIF values in Table 5.

Selecting RAH or Family Involvement. Statistical procedures were used to obtain a better understanding of the relationship between the variables RAH and family involvement. Before selection of the final model two procedures were initiated that examined RAH and family involvement. The first procedure was pseudo R^2 statistics and the second, odds ratio.

Pseudo R^2 statistics. Hamilton (2004) explained that unlike the R^2 statistic in Ordinary Least Squares, pseudo R^2 statistic cannot be exactly computed for logistic regression models and is an approximation only. Freese and Long (2006) stated that the pseudo R^2 statistic alone cannot be interpreted independently. The authors suggested that its validity and usefulness occurs when evaluating multiple models predicting the same

outcome on the same dataset using multiple pseudo R^2 measures. Hamilton (1992) concurred with Freese and Long (2006) and clarified that each pseudo R^2 measure has its advantages, but there is no general agreement as to which one is best.

To examine model fit, a variety of pseudo R^2 measures were computed for two separate models. The first model included all variables with RAH, saving this model, a second model was then examined by substituting RAH with family involvement. Model fit was based on the Bayesian information criterion (BIC') that uses the likelihood ratio (LR) χ^2 values. The range of BIC' values range from 0 weak evidence; 2-6 positive evidence; 7-10 strong evidence; and > 10 very strong evidence for the current model.

In this study, a BIC' value of 5.24 indicated that RAH versus family involvement in the model made little difference. The second procedure, odds ratio, was done.

Odds ratios. Hamilton (1992) related that due to complicated algebraic translations, referred to as maximum log likelihood, of logistic regression, coefficients are generally not easy to interpret. Odds ratios offer a more intuitive interpretation of logistic regression coefficients. Hamilton explained that logistic regression maximizes the log likelihood, which reflects how likely it is (the odds) that observed values of the dependent variable may be predicted from observed values of the explanatory variables.

Family involvement. Examining the regression from an odds ratio perspective, Table 8 shows the odds ratio for family involvement was small. The value (1.00) indicated that for every one minute increase in family involvement, a client's odds of engagement were one times higher when all other variables were held constant at their mean. However, family involvement typically occurred in at least 15 minute increments, so the odds ratio

was examined in the same blocks of time. In this context, for every 15 minutes, the odds of engagement increased by 1.7% or 1.017 times.

Table 8

Odds Ratios Using Family Involvement

Engagement	OR	Standard. Error	z	P > |z|	95% CI	
Log_Intensity	0.43	0.15	-2.39	.02*	[0.21,	0.86]
Family Involvement	1.00	0.00	2.92	.00*	[1.00,	1.00]
Gender	8.26	7.02	2.49	.01*	[1.56,	43.69]
Age Range	0.79	0.52	-0.36	.71	[0.21,	2.39]
Drug3 (Marijuana)	0.02	0.02	-3.09	.00*	[0.00,	0.23]
Co-Occurring Disorder	1.53	1.47	0.44	.66	[0.23,	10.11]
Past AOD Treatment	0.08	0.11	-1.93	.05	[0.01,	1.04]
Residential	3.30	3.05	1.27	.20	[0.53,	20.35]

Log likelihood	=	-35.31
Number of observations	=	82.00
Log likelihood χ^2	=	42.62
Prob > χ^2	=	0.00
Pseudo R^2	=	.38

Note: OR = odds ratio; CI = confidence interval; Prob = probability
*p < .05.

Family involvement was statistically significant at the p = .05 level when holding all other variables constant; therefore, the second null hypothesis was rejected. Statistically, clients were more likely to demonstrate engagement when family was involved in the treatment process.

RAH. In Table 9, when RAH was substituted in the model, it was statistically significant at the p = .05 level when holding all other variables constant. Therefore, the first

null hypothesis was rejected. Clients in the RAH group were statistically more likely to demonstrate engagement than clients in the Conventional group.

Table 9

Odds Ratios Using RAH

Engagement	OR	Standard. Error	z	P > |z|	95% CI	
Log_Intensity	0.49	0.16	-2.18	.03*	[0.26,	0.93]
RAH	6.30	4.50	2.58	.01*	[1.56,	25.47]
Gender	6.60	5.15	2.43	.02*	[1.44,	30.41]
Age Range	0.84	0.53	-0.27	.79	[0.25,	2.90]
Drug3 (Marijuana)	0.20	0.03	-3.01	.00*	[0.00,	0.25]
Co-Occurring Disorder	1.58	1.48	0.49	.62	[0.25,	9.91]
Past AOD Treatment	0.06	0.08	-2.17	.03*	[0.00,	0.77]
Residential	2.43	2.30	0.94	.35	[0.38,	15.41]
Log likelihood = -37.93						
Number of observations = 82.00						
Log likelihood χ^2 = 37.38						
Prob > χ^2 = 0.00						
Pseudo R^2 = .33						

Note: OR = odds ratio; CI = confidence interval.
*p < .05.

Although RAH and family involvement were both statistically significant, the differences in the odds ratios presented richer information. When compared to family involvement, odds ratio for RAH presented a different picture. Table 9 shows that odds of engagement for clients in the RAH group were 6.30 times greater than the Conventional group. Based on the greater differences between family involvement and RAH odds ratios, it appeared something was different in the manner RAH involved families, which ultimately facilitated client engagement in the treatment process.

Possible explanations for the dissimilarity may rest in philosophical and clinical practice differences between RAH and Conventional groups discussed in the next chapter. The measure used for family involvement may be sensitive to contact time (number of minutes family, client, and addiction professional interacted), but not the specific nuances of family involvement observed in RAH. RAH and family involvement were highly correlated; however, the measure itself appeared not sensitive enough to recognize differences between the two groups, therefore it made intuitive sense to use RAH in the final model.

Final Model

Eight explanatory variables were selected for the final model that statistically best fit the data:

- Log of intensity (Log_Intensity)
- RAH
- Gender
- Age range
- Drug3 (Use of Marijuana)
- Co-Occurring disorder
- Past AOD treatment
- Residential

The LR test for the final model indicated that it was statistically significant (LR χ^2 [8] = 37.38, Probability > χ^2 = 0.00). Table 10 shows multicollinearity was no longer problematic when RAH remained, family involvement dropped, and the new explanatory variable Drug3 (Marijuana) was included in the final model.

Table 10

Variance Inflation Factor and Tolerance Values with RAH and New Explanatory Variable (Drug3 [Marijuana])

Variable	VIF	1/VIF
Residential	1.60	.62
RAH	1.34	.74
Log_Intensity	1.32	.76
Drug3 (Marijuana)	1.23	.82
Past AOD Treatment	1.20	.84
Co-Occurring Disorder	1.18	.85
Age Range	1.09	.92
Gender	1.04	.96
Mean VIF	1.25	

Note: VIF = variance inflation factor; 1/VIF = tolerance values for explanatory variables.

I concluded that the model contained explanatory variables that should be in the model, and these variables were entered in the correct functional form. The next section discusses the use of diagnostic strategies to assess the fit of the model.

Using Logistic Regression Diagnostics to Assess Fit of Model

Sarkar and Midi (2010) stated that inferences from analysis where there has been no evaluation of goodness-of-fit should be viewed with some skepticism. Hamilton (1992) claimed that carefully planned diagnostic measures improve the credibility of a study's results. Before using the model for determining statistical inference, diagnostic measures were performed to satisfy the assumptions of logistic regression. These diagnostic measures

were done to (a) determine specification error from both theoretical and statistical perspectives, (b) identify goodness-of-fit, and (c) examine accuracy of predictions and influential observations.

Specification Error

Correct specification reflects that the functional form of the model is correct and contains all relevant explanatory variables. A specification error takes two forms (a) omitting one or more relevant explanatory variables, or (b) including one or more irrelevant explanatory variables. Misspecification of the model results in biased coefficients especially if coefficients are under or over estimated.

Theoretical soundness of model. Variables in the final model were theoretically grounded as described in Chapter Two. For example, intensity of treatment was viewed from a chronic care viewpoint, where contacts between client and professional staff are generally provided in short bursts over a greater length of time. Intensity of treatment as a function of contact time divided by duration was essential for inclusion in this study.

The model included family involvement as an explanatory variable. As discovered in the literature reviewed, when family members become integral parts of the treatment process deleterious effects of addiction can be mitigated.

As detailed in Chapter Three, Methodology, other variables—gender, age range, drug(s) of choice, co-occurring disorders, and past AOD treatment—were chosen for inclusion in the model because data about these variables are routinely collected and reported under the auspices of the federal agency, SAMHSA, Office of Applied Studies. It made logical sense to include variables that were collected and reported by the federal government.

Specification error test. The link test performed in this study is based on Tukey's work (1977), as cited in *Stata Base Reference Manual Release 10* (2007). The test premise is that if a regression equation is appropriately specified, then no additional explanatory variables should be found that are significant except by chance. *Stata Base Reference Manual Release 10* (2007) explained that a specification error, known as a link error, occurs when the dependent variable needs a transformation or link function to relate to the explanatory variables.

A link test adds an independent variable to the equation that is likely to be significant if there is a link error. After regressing the equation, the linear predicted value (_hat = $X\beta$) and linear predicted value squared (_hatsq = hat^2) statistics were calculated. The model was re-fit using these two variables as predictors and the test was based on the significance of the linear predicted value squared.

The values indicated linear predicted value (_hat) was statistically significant ($p = .00$), which was anticipated since it was the predicted value. Conversely, linear predicted value squared (_hatsq) was not statistically significant ($p = .88$). Since _hatsq was not statistically significant, the prediction squared had explanatory power.

In conclusion, theoretically the model was sound and included all relevant variables with none missing. From a statistical standpoint, the model consisted of meaningfully specified predictors.

Summary Measures of Goodness of Fit

The Pearson χ^2 goodness-of-fit test compared the observed frequencies with the expected frequencies using the number of covariate patterns or various combinations of explanatory variables predicting engagement (Stata Base Reference Manual Release 10,

2007). As noted in Table 11, adequate fit corresponds to a finding of nonsignificance (Probability > χ^2 = 0.45) suggesting that the model fit reasonably well.

Table 11

Pearson χ^2 Logistic Model for Engagement, Goodness-of-Fit Test

Characteristics		
Number of observations	=	82.00
Number of covariate patterns	=	81.00
Pearson chi2(72)	=	72.96
Probability > chi2	=	0.45

This study's dataset caused small expected values since the number of columns increased as n increased. As a result, the number of covariate patterns (81) approached the number of observations (82). Given that the number of covariate patterns and observations were nearly equal, using Hosmer and Lemeshow χ^2 test was more appropriate.

Hosmer and Lemeshow χ^2 test worked best because the dataset contained continuous explanatory variables and the sample size was small. The Hosmer and Lemeshow χ^2 test collapsed columns into a fixed number of groups based on percentiles of the estimated probabilities. As Table 12 depicts, the table was collapsed into six nearly equal-sized groups. The χ^2 = 0.53, p > .05 meant no difference existed in the observed and expected frequencies, therefore, the model's estimates fit the data at an acceptable level.

Table 12

Hosmer and Lemeshow Logistic Model for Engagement, Goodness-of-Fit Test

Group	Prob	Obs_1	Exp_1	Obs_0	Exp_0	Total
1	0.17	1	1.0	13	13.00	14
2	0.38	3	3.80	11	10.20	14
3	0.57	9	6.30	4	6.70	13
4	0.67	8	8.70	6	5.30	14
5	0.86	10	11.10	4	2.90	14
6	0.99	12	12.10	1	0.90	13

Number of Observations = 82.00
Number of Groups = 6.00
Hosmer-Lemeshow χ^2 (4) = 3.15
Probability of χ^2 = 0.53

Note: Prob = probability; Obs = observed; Exp = expected.

Classification Table

The classification table for engagement, as shown in Table 13, evaluated the predictive accuracy of the logistic regression model. The table summarized the results of a fitted logistic regression model via a classification model. Observed values for the dependent variable and explanatory variables predicted values, at a cut-off value of 0.50, were cross-classified.

The model accurately estimated a 0.50 probability of engagement in 33 cases when engagement did occur. For 27 other cases, the model accurately predicted less than a 0.50 probability that engagement did not occur. The overall correctly classified cases were

33 + 27 = 60 out of 82 or 73.17%. The sensitivity value or the percentage of observations with probability of ≥ 0.50 that engagement occurred was calculated at 76.74% (33 out of 43 cases).

Table 13

Classification Table for Engagement

	True		
Classified	D	~D	Total
+	33	12	45
-	10	27	37
Total	43	39	82

Classified + if predicted Pr(D) >= .5
True D defined as eng != 0

Sensitivity	Pr(+| D)	76.74%
Specificity	Pr(-|~D)	69.23%
Positive predictive value	Pr(D| +)	73.33%
Negative predictive value	Pr(~D| -)	72.97%
False + rate for true ~D	Pr(+|~D)	30.77%
False - rate for true D	Pr(-| D)	23.26%
False + rate for classified +	Pr(~D| +)	26.67%
False - rate for classified -	Pr(D| -)	27.03%
Correctly Classified		73.17%

Note: D = the event of interest (engagement) did occur for that observation;
~D = the event of interest (engagement) did not occur for that observation.

Hosmer and Lemeshow (2000) explained that classification tables report sensitivity and specificity that rely on a single cutpoint, in this case 0.50, to classify a test result as positive. However, according to Hosmer and Lemeshow the area under the Receiver Operating Characteristic **(**ROC) curve provides a more complete description of classification.

Area under the ROC Curve

The area under the ROC curve measured the model's ability to discriminate between clients who demonstrated engagement with those who did not. The area, which ranged from 0 to 1, provided a measure of discrimination. Discrimination was the likelihood that the model accurately predicted engagement. Figure 5 illustrates that ROC of .83, is considered an excellent discrimination of engagement versus no engagement.

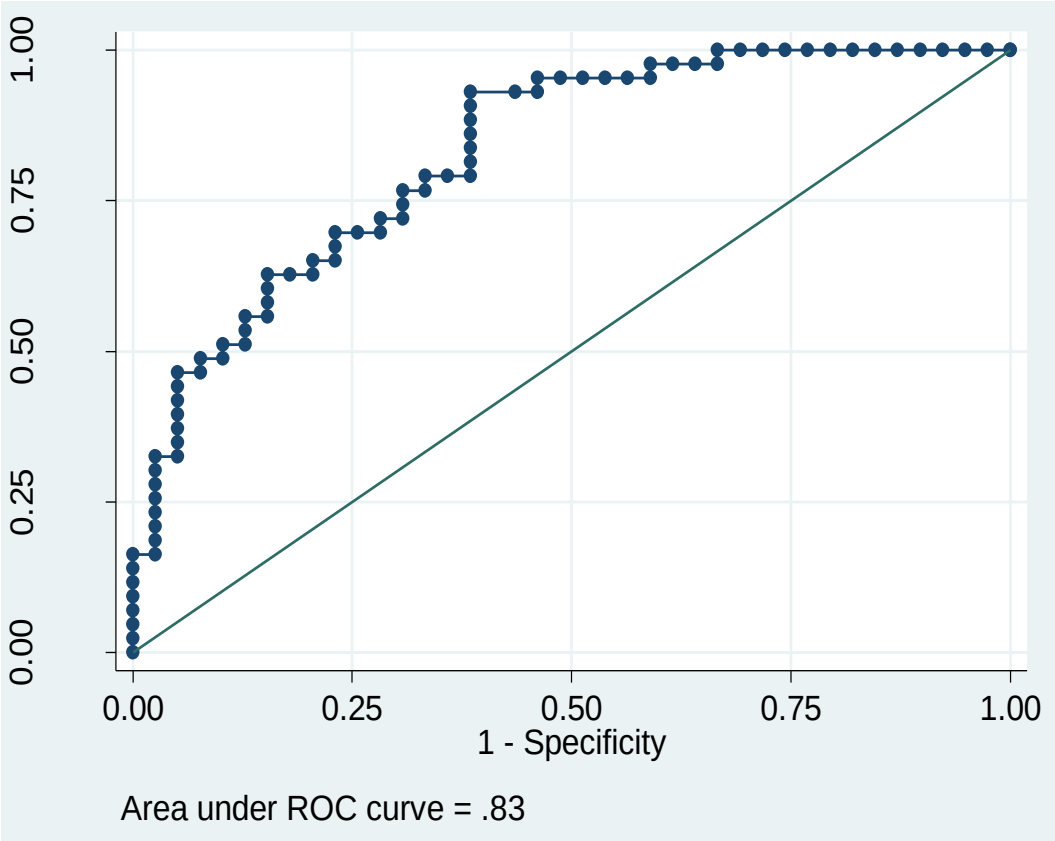

Figure 5. Receiver Operating Characteristic (ROC) curve.

Detection of Influential Cases

This section focuses on the detection of observations that potentially had an impact on the model. The deviance (also known as residual deviance) was used to assess the fit of the overall model. It plays the same role that the residual sum of squares plays in linear

regression and provides information of influence on parameter estimates of each covariate pattern. As Figure 6 shows, the smaller the deviance the better the fit.

As described earlier when initially exploring the model, regression criticism indicated a problem with influential cases. After detecting two cases (Case 74 and 76) that were farther away from most others, these two influential cases were examined before consideration was given to either retaining or dropping one or both observations. As the first step, data were scrutinized for entry errors. No data entry errors were detected. Next, a review of themes in progress notes and/or discharge summaries followed.

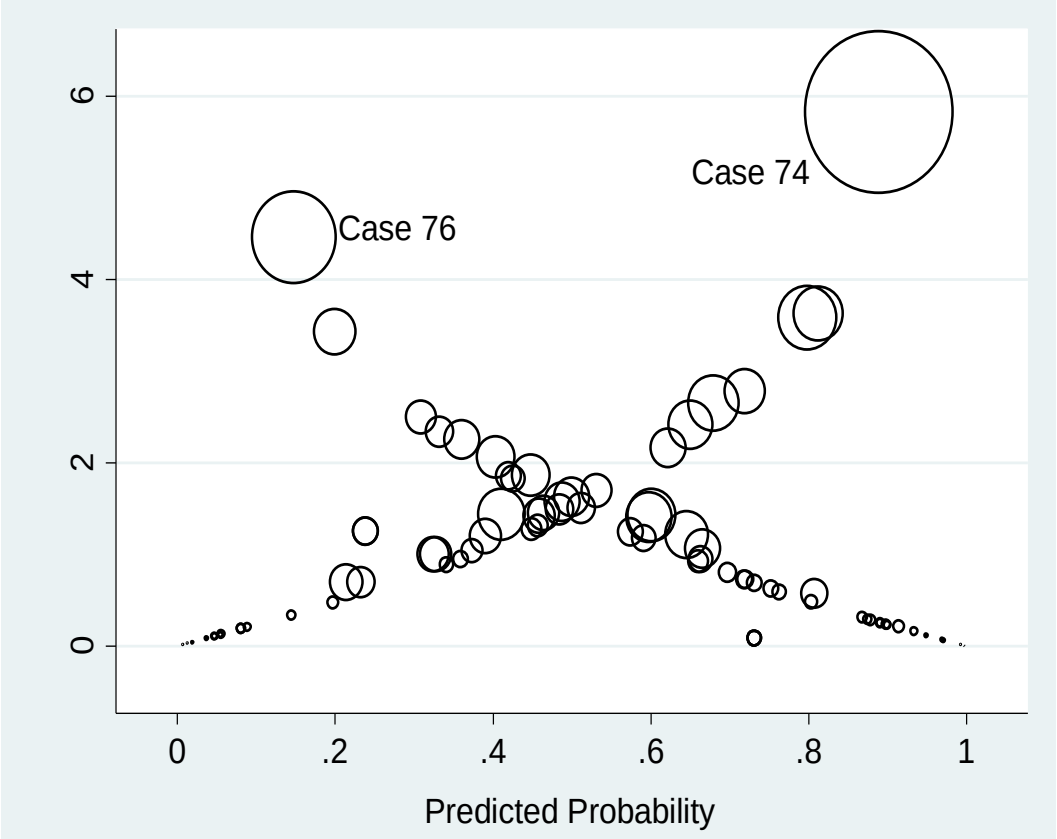

Figure 6. Predicted probabilities of client engagement.

Case 74. Figure 6 reveals that the worst-fit observation, Case 74, was also the most influential. Examination of the data indicated that Case 74 was a 19 year old female whose

primary drug of choice was opiods, no co-occurring disorder and no prior AOD treatment. According to case record notes, the client attended only one session for 50 minutes.

Based on the predictions, the client should have demonstrated engagement but did not. This discrepancy can be explained in that females in the Conventional group who reported drugs other than marijuana, with no prior AOD treatment, often had a higher level of probability of engagement. Based on this case, the model did not accurately predict engagement when female clients from the Conventional group attended just one session.

The nature of AOD treatment is that often individuals attend just one session for a multitude of reasons, such as pressure from a family member or employer, or fear of losing a driver's license. After the first session, the individual may drop out for a period of time and return when experiencing more severe addiction related problems.

According to case record notes, the client's primary motivation for seeking treatment was to see her boyfriend more often than her parents permitted. Although I recognized the influence of this observation, nonetheless, I expected more outliers of this type of drop-out scenario. Walker (2009) remarked that dropout rates have been reported as high as 55%. Given the common occurrences of such cases, it was appropriate to keep this case even though it was misspecified.

Case 76. This case was a 55 year old male who was part of the Conventional group, had no co-occurring disorder, and no prior AOD treatment. Alcohol was the primary drug of choice. Based on the predicted probabilities, he should not have demonstrated engagement. In reviewing the case record, he participated in a weekly group session and had active family involvement. According to case record notes, he requested an evaluation

to receive a prescription for a medication to prevent alcohol cravings. This request may indicate his willingness to try multiple strategies to remain invested in the treatment process.

The discrepancy may be explained in that males in the Conventional group had the lowest probability of engagement. Since the case was not overly influential, the observation remained.

The following section in this chapter visually depicts probability of engagement using conditional effects plots. Conditional effects plots visually displayed predicted values of engagement against one explanatory variable, with the other explanatory variables held constant.

Conditional Effects Plots

Relationships between Treatment Intensity and the Probability of Engagement

Comparison of drug(s) of choice—other and marijuana. Figure 7 shows the sharp contrast in the probabilities of treatment engagement for other drug(s)—opiods, alcohol, and polysubstances—and marijuana users. The probability of engagement for marijuana users was considerably lower than for users of other drugs. The next sections provide detailed and separate explanations of drugs of choice and by gender.

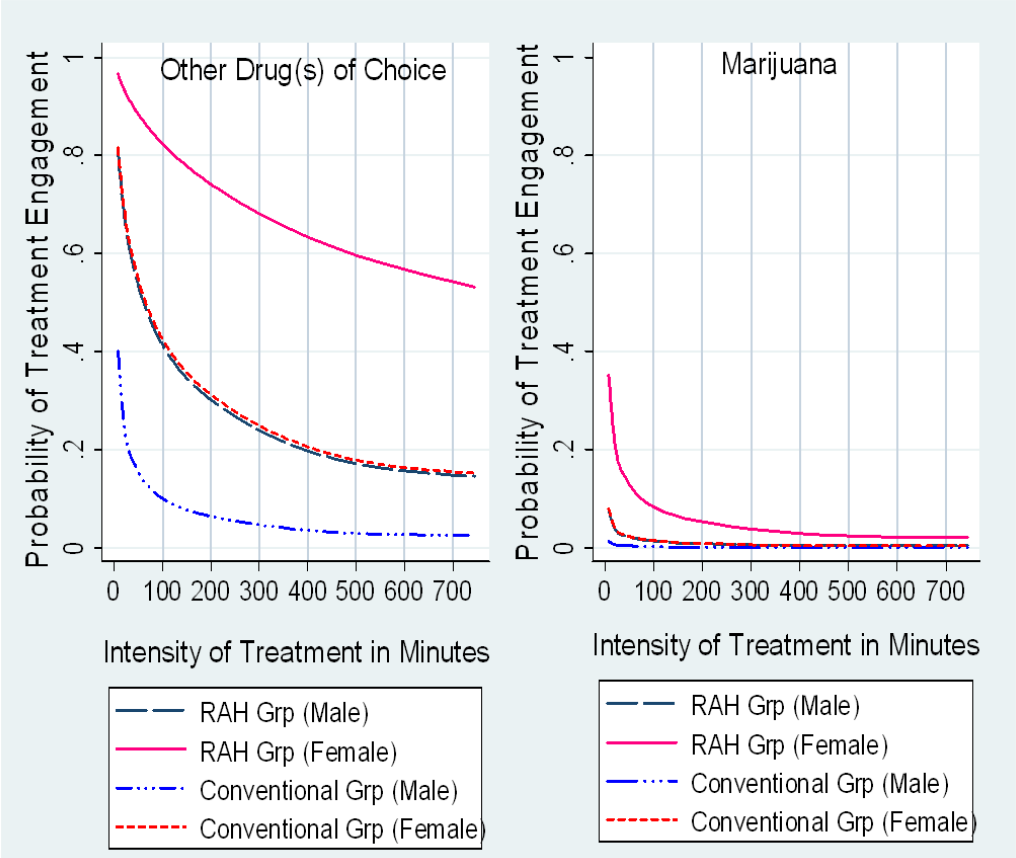

Figure 7. A comparison of RAH and Conventional groups depicting relationships between treatment intensity and the probability of engagement for other drug and marijuana users. 0 = no engagement; 1 = engagement. Intensity of treatment is the total number of contact minutes between client and addiction professional divided by duration in treatment.

Other drug(s) of choice. Figure 8 shows the probability of engagement in treatment for clients in RAH and Conventional groups when they used other drugs—opiods, alcohol, and polysubstances. As intensity of treatment increased, probability of engagement for all groups decreased. In other words, lower levels of intensity of treatment increased the probability of engagement for all groups.

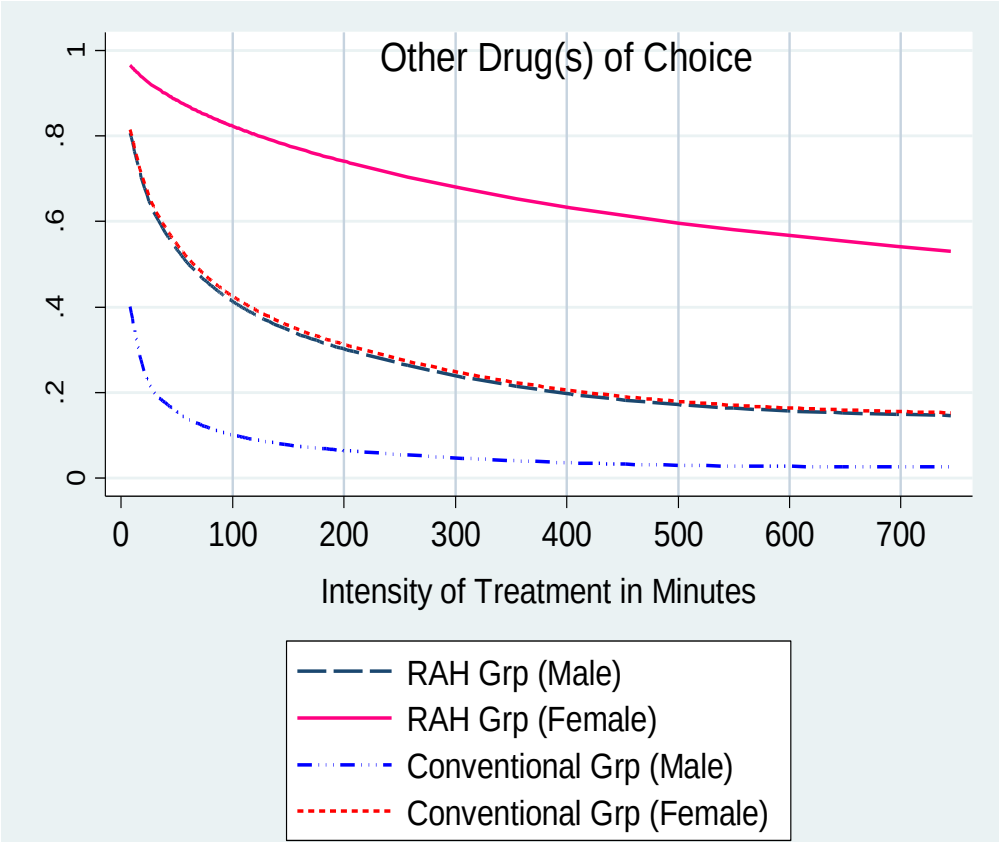

Figure 8. A comparison of RAH and Conventional groups depicting relationships between treatment intensity and the probability of engagement for other drug users. 0 = no engagement; 1 = engagement. Intensity of treatment is the total number of contact minutes between client and addiction professional divided by duration in treatment.

Drug(s) of choice (other) by gender relative to intensity. Figure 9 presents the probability of engagement by gender for other drug(s) of choice. Between RAH and Conventional groups, females in the RAH group had the highest probability of engagement.

For males in the RAH group, their probability of engagement began a steady decline at an intensity level between 0 and 100 minutes, and nearly leveled off between 500 and 600 minutes. The Conventional group abruptly declined, but more slowly, especially for women.

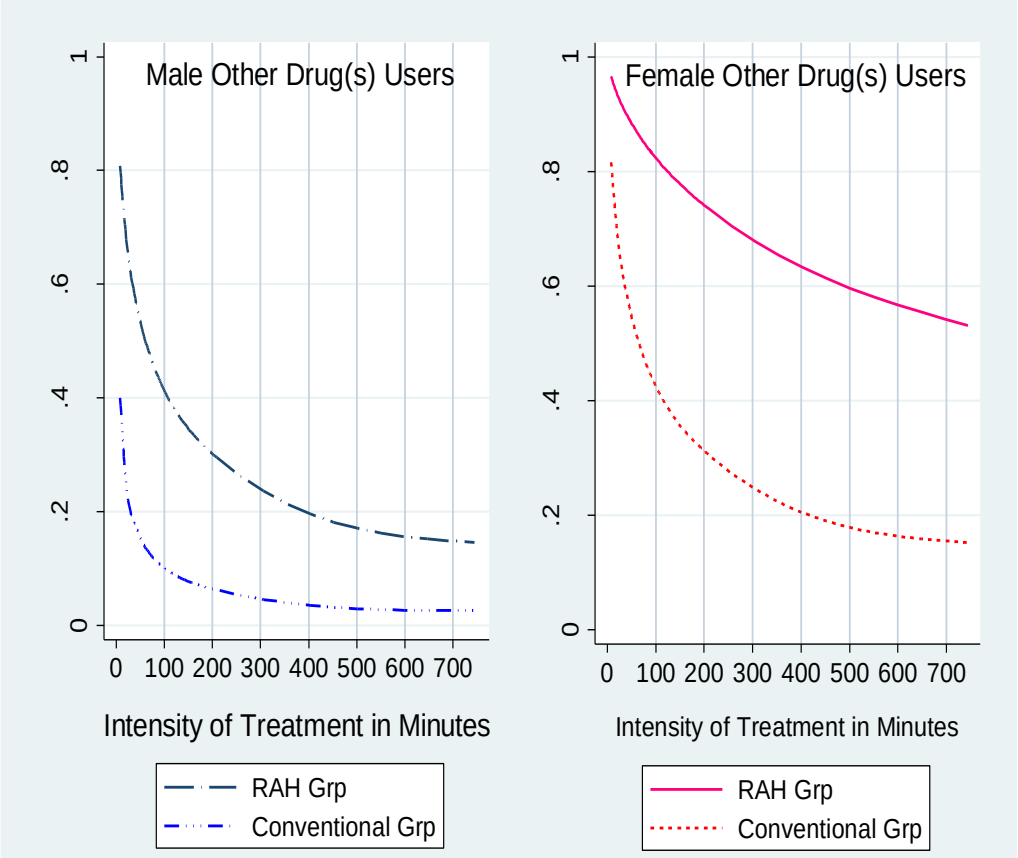

Figure 9. A comparison of RAH and Conventional groups depicting relationships between treatment intensity and the probability of engagement for male and female other drug users. 0 = no engagement; 1 = engagement. Intensity of treatment is the total number of contact minutes between client and addiction professional divided by duration in treatment.

For females in the RAH group, they demonstrated engagement at lower levels of intensity. Probability of engagement began dropping at higher levels of intensity between 50 and 100 minutes. However, the probability of engagement steadily declined as intensity of treatment increased, but remained well above females in the Conventional group and males in both groups. For females in the Conventional group, probability of engagement mirrored males in the RAH group; sharply declining between 0 and 100 minutes and leveling off between 500 and 600 minutes.

Drug of choice (marijuana). Figure 10 shows that the probability of engagement for marijuana users was markedly lower when compared to other drug(s) of choice (Figure 8). Probability of engagement for all groups was very low even at lower intensity of treatment levels.

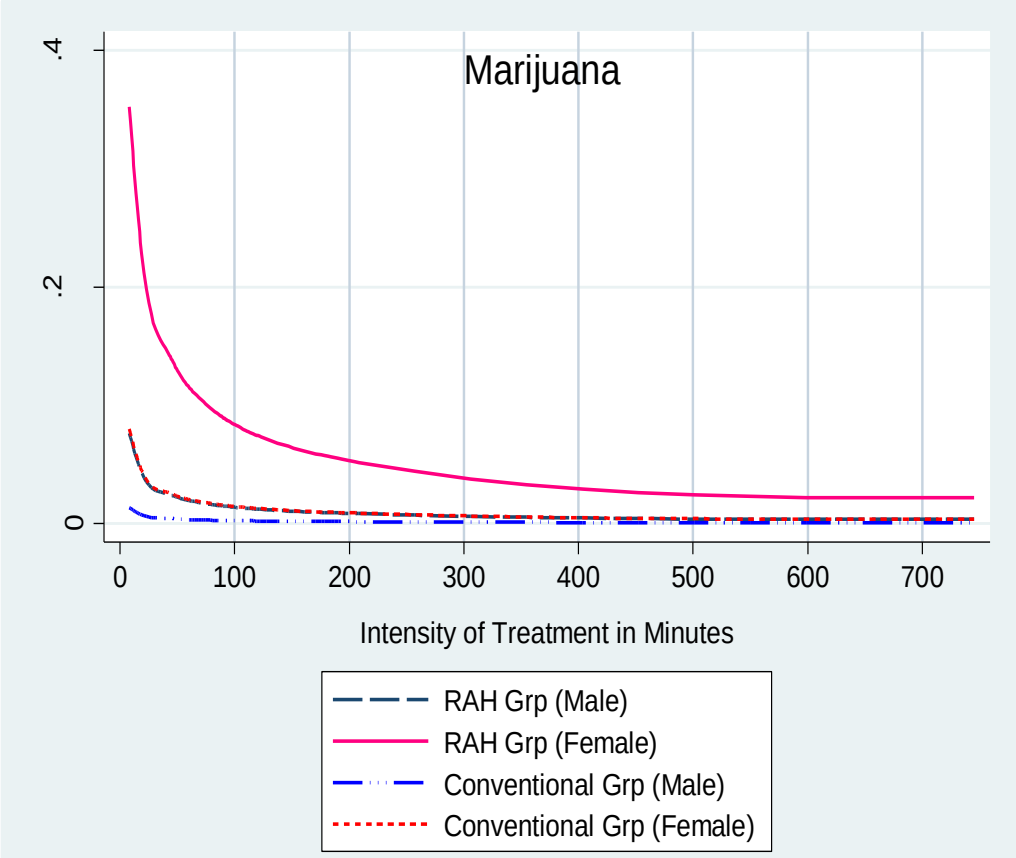

Figure 10. A comparison of RAH and Conventional groups depicting relationships between treatment intensity and the probability of engagement for marijuana users. 0 = no engagement; 1 = engagement. Intensity of treatment is the total number of contact minutes between client and addiction professional divided by duration in treatment.

Drug of choice (marijuana) and gender. Figure 11 shows the probability of engagement for both gender marijuana users. Overall, probability of engagement in treatment was noticeably low (< .10) for all but one sub-group—females in the RAH group. The decline for both males and females in RAH and females in Conventional groups was

more rapid and the leveling more quickly attained when compared to probability of engagement for other drug users.

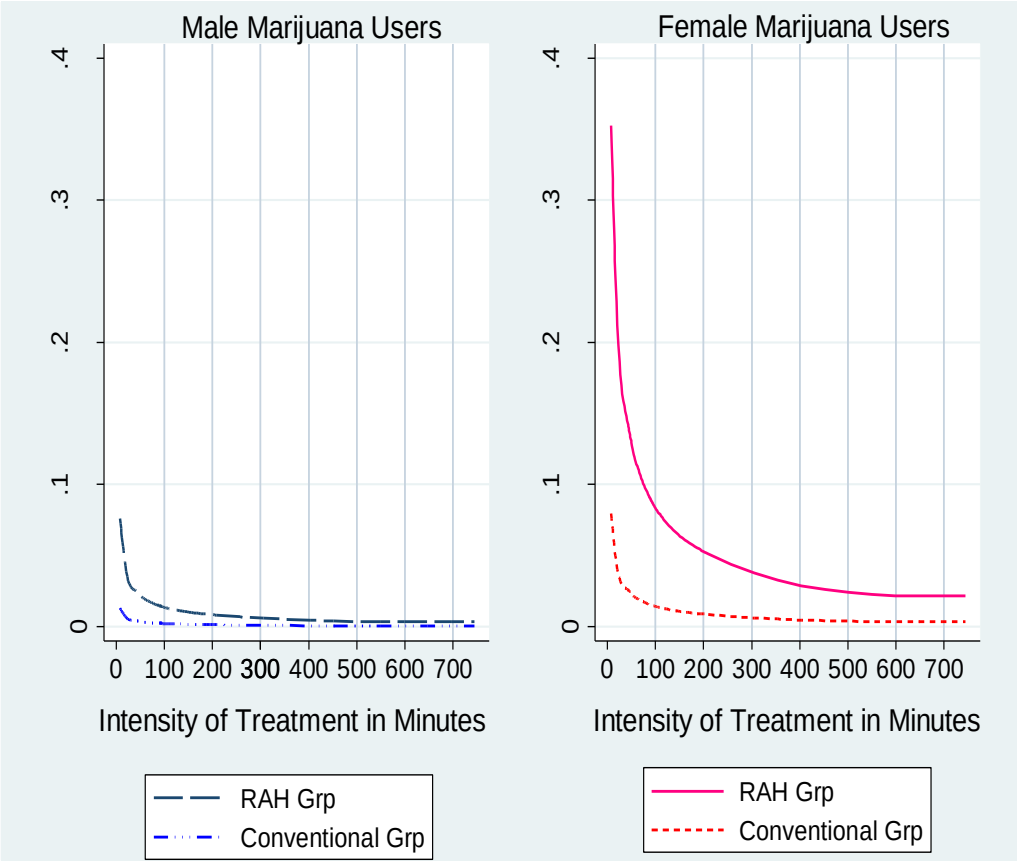

Figure 11. A comparison of RAH and Conventional groups depicting relationships between treatment intensity and the probability of engagement for male and female marijuana users. 0 = no engagement; 1 = engagement. Intensity of treatment is the total number of contact minutes between client and addiction professional divided by duration in treatment.

For male marijuana users in the RAH group, the probability of engagement started off very low (< .10), declined at an intensity level between 0 and 100 minutes, and leveled off between 200 and 300 minutes. For males in the Conventional group, probability of engagement was nearly non-existent at any intensity of treatment level.

For female marijuana users in the RAH group, probability of engagement was higher than other groups, but not nearly as high as females in the RAH group reporting other

drug(s) of choice. Probability of engagement sharply declined between 0 and 100 minutes and continued until leveling off between 500 and 600 minutes.

Relationships between Past AOD Treatment and the Probability of Engagement

Comparison of drug(s) of choice—other and marijuana. Prior AOD treatment was examined when holding Log_Intensity at its mean and drug(s) of choice was other (opiods, alcohol, and polysubstances) and marijuana. Figure 12 depicts that the probability of engagement for both groups was more likely to occur when clients did not have prior AOD treatment regardless of drug(s) of choice.

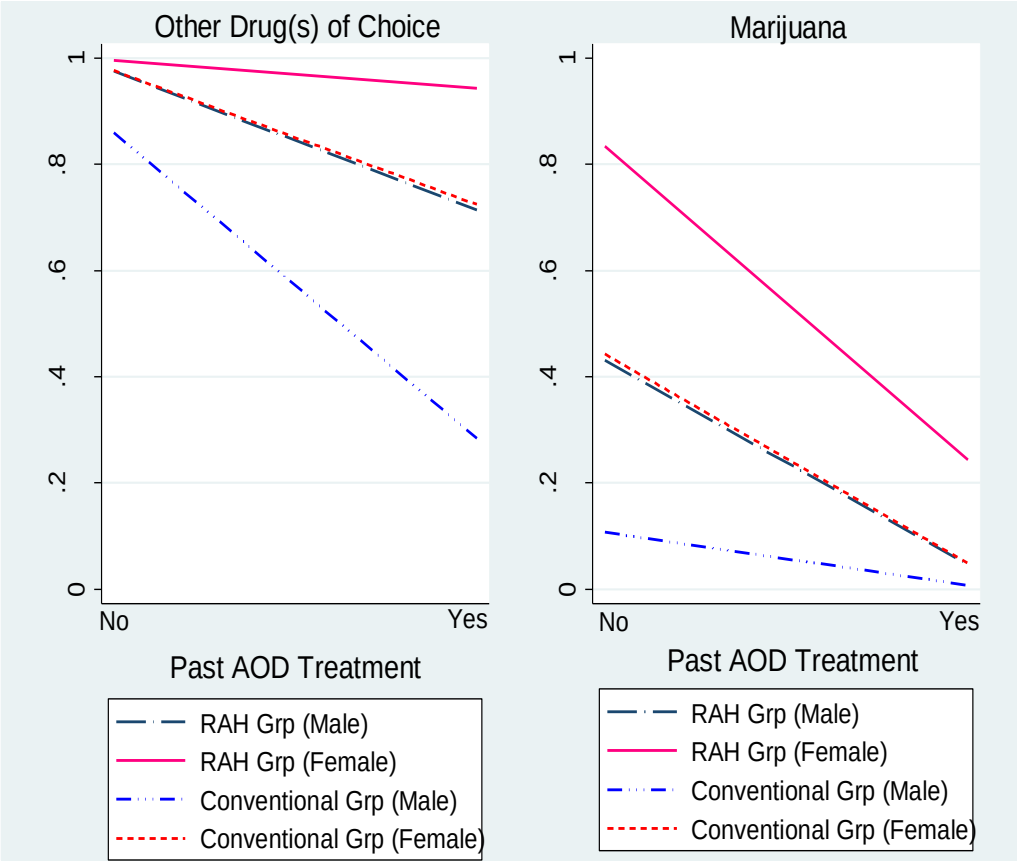

Figure 12. A comparison of RAH and Conventional groups depicting relationships between past AOD treatment and the probability of engagement for other drug and marijuana users when holding Log_Intensity at its mean. 0 = no engagement; 1 = engagement.

For females in the RAH group, probability of engagement remained fairly stable even if they had a history of prior treatment with the exception if marijuana was the drug of choice. Similar to females in the RAH group, probability of engagement for females in the Conventional group was noticeably higher for other drug(s) users compared to marijuana.

For males in the RAH group, the probability of engagement mirrored females in the Conventional group. The probability of engagement was higher for males in the RAH group when they did not have any prior AOD treatment.

When they were marijuana users, their probability of engagement was markedly lower. For males in the Conventional group who other drug(s) of choice, the probability of engagement was higher when they had no prior AOD treatment. However, for marijuana users, their probability of engagement was very low when compared to males in all other groups, regardless of prior AOD treatment.

Summary of Results

Variable Determination

A model was created to determine which explanatory variables predicted engagement in treatment. Exploratory multivariate analysis was performed, which suggested statistically significant relationships existed among family involvement, gender, and drug3 (marijuana primary) with engagement. However, regression criticisms uncovered three problems (a) nonnormal distribution of continuous variables, (b) multicollinearity, and (c) influential cases.

Because the value of intensity was highly skewed, its log transformation was used in the final model. Family involvement remained as a non-transformed variable after unsuccessful attempts at transformation. All other explanatory variables were dichotomous

and as such did not need transformation. Engagement was tested for symmetry and found to be a good candidate for logistic regression.

The model was checked for multicollinearity. Three variables–drug1, drug2, and drug4—showed multicollinearity. After performing regression analyses of various combinations of drug1, drug2, and drug4, and excluding drug3 (Marijuana), the combinations consistently remained statistically not significant. When drug3 was introduced with different combinations of drug1, drug2, and drug4, it remained consistently statistically significant. As a result, individual dummy variables associated with types of drugs were combined, and a new variable, drug3 (Marijuana), was generated. Distribution was unequal between RAH and Conventional groups and as a result residential was used as a control variable

Two other explanatory variables, family involvement and RAH, showed multicollinearity as evidenced by high VIF and point biserial correlation values. Further statistical tests showed that a BIC' value of 5.24 did not indicate strong or very strong support for a model with family involvement rather than RAH when examining multiple measures for pseudo R^2. Family involvement and RAH odds ratios showed that RAH had a markedly higher odds ratio than family involvement.

The decision was made to include RAH instead of family involvement in the final model. Eight explanatory variables were selected for the final model that statistically best fit the data: (a) the log of intensity, (b) RAH, (c) gender, (d) age range, (e) drug3 (Marijuana), (f) co-occurring disorder, (g) past AOD treatment, and (h) residential.

Diagnostic Measures

Logistic regression diagnostics indicated the overall model was statistically sound in distinguishing between engagement and no engagement. A specification error test showed that the model consisted of meaningful predictors. In terms of goodness-of-fit tests, Pearson $\chi^2 = 72.96$, $p > .05$ and Hosmer and Lemeshow $\chi^{2} = 0.53$, $p > .05$ level showed that estimates fit data at acceptable levels. The model classified 73.17% of the cases correctly. The area under the ROC curve (.83) indicated excellent discrimination of engagement versus no engagement in treatment.

Hypothesis Testing and Odds Ratios

Hypothesis testing on the final model showed that the log of intensity, RAH, gender, and past AOD treatment had an effect on engagement. All three null hypotheses were rejected at the $p = .05$ level. While age range, co-occurring disorder, and residential were theoretically sound variables, they were not statistically significant.

Odds ratios provided compelling evidence in support of RAH. For the RAH group, clients' odds of engagement were 6.30 times greater than clients in the Conventional group when controlling for other variables. Additionally, a female's odds of engagement were 6.6 times higher than a male's.

Probability of Engagement in Treatment

Several characteristics affected probability of engagement. At lower levels of intensity of treatment and no prior history of AOD treatment engagement was more likely to occur. The use of marijuana significantly decreased the probability of engagement for clients of both genders, regardless of RAH and Conventional groups.

Females in the RAH group using drugs other than marijuana were considerably more likely to demonstrate engagement, especially at lower intensity levels. Males in the RAH group, who used drugs other than marijuana, consistently had moderate probabilities (.60 to .80) of engagement, but not nearly as high (.95) as females in RAH. For females in the Conventional group, probabilities for engagement (.65 to .85) essentially mirrored males in the RAH group. The probability of engagement for males in the Conventional group, was consistently low (.20 to .40) to non-existent, especially when they were marijuana users. Chapter Five presents a discussion of findings and implications for future clinical practice.

CHAPTER V DISCUSSION AND CONCLUSIONS

The primary purpose of this study was to determine if a family-centered home based treatment approach resulted in different outcomes than traditional treatment alone. In this study, Rehab at Home (RAH) represented family-centered home based and traditional treatment was defined as outpatient, partial hospital program, and short-term residential. The sample for this study consisted of 82 archived case records of clients who received alcohol and other drug (AOD) treatment from 2005 to 2008.

One half of the case records, RAH group, were participants in RAH while simultaneously involved in single or various combinations of traditional treatment modalities. For example (a) outpatient only; (b) outpatient and partial hospital program; (c) residential only; (d) residential and outpatient; and (e) residential, partial hospital program, and outpatient.

For the remaining half of the case records, clients participated exclusively in single or a combination of traditional treatment modalities, for example (a) outpatient only; or (b) outpatient and partial hospital program. For purposes of this study, this half of the case records was referred to as the Conventional group. Residential became a control variable because no Conventional group case records showed participation in residential services. Secondary quality of life (QOL) data obtained from telephone surveys were analyzed using descriptive analysis.

This chapter briefly describes procedures of the study and sets forth a discussion of the research findings. It then outlines the limitations of the study, provides recommendations for future studies, offers implications for clinical practice in the addiction field, and ends with concluding statements.

Summary of Procedures

The dependent variable, client engagement, provided the primary focus for the study. The second dependent variable, QOL, provided a secondary focus.

Adapting DiClemente's (2003) and Connor et al.'s work (2001) the first dependent variable, engagement, was theoretically defined as changes in thinking and behavior that reflect an individual's firm and clear decision or commitment to recovery. Engagement was measured using a checklist, "*Recovery Behaviors Indicative of Action Stage of Change*" (Appendix B), which guided decisions regarding clients' engagement in the treatment process. Using the checklist as a guideline, progress notes and/or discharge summaries in the case records were reviewed by a panel of two addiction professionals and this researcher. After the panel reviewed approximately 25% of the case records, constancy and consensus about client engagement versus no engagement occurred with regularity.

Individual panel members reviewed remaining case records, and then met to discuss any obstacles in determining engagement or no engagement. Each panel member questioned engagement for 2-3 case records. The panel then reviewed these records and obtained consensus about engagement or no engagement. Scant documentation led the panel to eliminate two RAH case records and matching case records from the Conventional group.

The second dependent variable, QOL was theoretically defined in terms of Haas' (1999) definition as "multidimensional evaluation of individuals' current life circumstances in the context of the culture and value systems in which they live and the values they hold. Primarily a subjective sense of well-being, QOL encompasses physical, psychological, social, and spiritual dimensions" (p. 219). Clients' and key family members' QOL was

measured using the Multidimensional Index of Life Quality (MILQ) instrument. The 35 item instrument measured respondents' degree of satisfaction in nine domains that included

1. Mental health;
2. Physical functioning;
3. Physical health;
4. Cognitive functioning;
5. Intimacy;
6. Social functioning;
7. Productivity;
8. Relationships with health professionals; and
9. Financial status.

An addiction staff person contacted clients and their key family member(s) from both RAH and Conventional Groups. Clients and key family members were asked a series of questions from the MILQ. Scores for each of the nine domains were provided to this researcher. QOL summary scores for clients and key family members were calculated by multiplying the MILQ mental health domain score by two and adding the physical functioning domain score as suggested by Avis et al. (1994).

Discussion of Findings

The present study found significant predictors of engagement included (a) RAH, (b) family involvement, (c) treatment intensity, (d) gender, (e) use of marijuana, and (f) past AOD treatment. Results revealed that irrespective of other predictor variables, female clients who used drugs other than marijuana and did not have previous treatment episodes had the highest probability of engagement in the treatment process.

Additionally, a converse relationship was seen between treatment intensity and engagement. Lower levels of intensity predicting engagement in the treatment process suggested that shorter bursts of treatment over a longer period of time led to a higher probability of engagement.

These findings suggest that addiction should be treated from a chronic care perspective. In contrast to the acute care model where lifelong abstinence is expected to occur following a single episode of treatment services, the chronic care model promotes the continuity of care, use of monitoring and early re-intervention, and provides recovery support (Dennis & Scott, 2007).

According to Larsen (2006), rarely does one entity simultaneously manage a chronic condition. Instead, the chronic care model supports partnering with clients, family members, and multidisciplinary services to create a synergistic interaction that continually adjusts to ongoing changes in the chronic conditions. When clients are in treatment longer, combined with ongoing interactions, the chronic care model offers numerous opportunities for addiction professionals, clients, and family members to work together to promote an environment for family cohesiveness and solidarity.

RAH and Family Involvement as Predictors of Engagement

Logistic regression analysis revealed that independent variables, RAH and family involvement, were statistically significant predictors of client engagement when holding all other variables constant. These findings mirrored Stanton and Shadish's (1997) meta-analysis, which showed that including families in therapy led to higher rates of engagement and treatment retention. Similarly, Copello et al. (2006) and Csiernik (2002) explained that

when family members were involved in the treatment process sobriety for the individual was impacted in a positive manner.

RAH and family involvement were not only statistically significant predictors of engagement but they were also highly correlated (r_{pbi} =.79). Yet, when the odds of engagement for RAH and Conventional groups were calculated independently of each other, the results were markedly dissimilar. Irrespective of other predictor variables, while family involvement yielded a significant but minimal relationship with engagement (for every 15 minutes of family involvement the odds of engagement increased by only 1.00%), the odds of engagement for clients in the RAH group were 6.30 times greater when compared to the Conventional group.

This finding indicated that although family involvement was significantly present in both RAH and Conventional groups, it was a weak predictor while RAH was a strong predictor of engagement. These findings suggest that the different philosophical perspective and the way it was operationalized in the RAH treatment setting influenced engagement.

RAH is theoretically grounded in both a family systems model and a chronic care perspective. The family systems model acknowledges the complexity of families and interactive patterns that guide family interactions, especially when chaos from addiction related problems arise. RAH recognizes that addiction alters the balance within a family. Thomas and Corcoran (2001) explained that from a family systems perspective, treatment focuses on family's expectations of change, establishes a testing ground for new patterns of behavior, and identifies strengths of each family member.

From the chronic care viewpoint, RAH emphasizes efficient and effective use of combinations of traditional treatment modalities, planned and ongoing interactions from a

team of professionals, and utilization of community resources. Larsen (2006) explained that the chronic care model emphasizes maintaining wellness or keeping symptoms in remission rather than a cure. From this model's perspective, family members are as important as their loved ones in both treatment and continuing care phases.

In contrast to RAH, traditional treatment modalities—outpatient, partial hospital program, and short-term residential—are theoretically grounded in the family disease model and acute care perspectives. Both family systems and family disease models look at addiction affecting all members of a family. However, in the family disease model emphasis is placed on codependency. McIntyre (2004) explained that codependency causes family members to focus on their significant other and engage in roles and enabling behaviors that maintain the family disease of addiction. Traditional treatment modalities encourage clients to work on themselves in isolation from family members while family members address their own issues.

From an acute care perspective, emphasis is on improving physical health and functioning (Kane et al., 2005). Services focus on the individual seeking assistance rather than the family system. Philosophical and theoretical differences in RAH and traditional treatment causes both to be operationalized differently in the treatment setting. These distinctions prove significant in terms of clinical practice and the probability of engagement.

In RAH, addiction professionals assist family member(s) and clients to form a partnership that focuses on strategies to promote abstinence while simultaneously building family cohesiveness and solidarity. Family members are not viewed as codependents that necessitate parallel treatment as is the case in traditional treatment. Furthermore, clients

participate in traditional modalities while family members and clients continue ongoing interactions with RAH addiction professionals.

In traditional treatment, addiction professionals and clients form a therapeutic alliance that focuses on achieving abstinence and engaging in a lifelong recovery process. Family members are directed to let go of focusing on the alcoholic or addict, and instead, focus on changing themselves. Addiction professionals promote parallel treatment for family members rather than viewing them as partners integral to the treatment process. Partnering only with the client, while viewing family members as add-ons, provides an explanation why the odds of engagement for the clients receiving traditional treatment exclusively were notably less than those for clients participating in RAH.

A second contributing factor for the strikingly higher odds of engagement for the RAH group might involve access to professional assistance. As problems arose, RAH family members could immediately contact addiction professionals rather than waiting until scheduled office times. This immediacy in interaction rests on one of the constructs of family systems therapy. As Fals-Stewart et al. (2004) noted effective communication between and among family members contributes to attaining and maintaining sobriety. Within this construct, having immediate access to addiction professionals during a critical moment appears to mitigate the injurious short- and long-term effects of a critical moment. For example, a critical moment can occur if while under the influence, an individual misses a family event such as a child's graduation. Instead of handling the critical moment alone or waiting until the next scheduled therapy appointment, in RAH the family member has an opportunity to call an addiction professional for immediate guidance.

Although not measured directly, I surmise that by working with family members during critical moments, family members were empowered to set limits and create new patterns of interaction. Traditional treatment, because of its focus on the client, offered few opportunities for family members to interact with addiction professionals during critical moments. Johnson et al. (2001) explained that not addressing negative emotional responses, particularly at times of increased vulnerability, creates a stage for an attachment injury. An attachment injury produces a sense of abandonment, betrayal of trust, and ultimately impedes family cohesiveness. The study's findings suggest that when family members actively participated in a family-centered, rather than a traditionally-based treatment process, family cohesiveness and solidarity developed and restored the security of the emotional attachment, thereby circumventing the creation of an attachment injury.

Intensity

The findings of this study showed that when intensity levels were low, the probability of engagement was at its highest. A lower intensity value indicated that a client interacted with an addiction professional over a longer period of time. Intensity was the degree of interactions between a client and an addiction professional. It was calculated by summing the number of minutes or contact time clients and addiction professionals interacted with each other and then dividing contact time by duration. For example, if Client A interacted with an addiction professional for 500 minutes over 90 days, he/she had an intensity value of 5.55; whereas, Client B who interacted the same amount of minutes over 30 days had a higher (16.66) intensity value.

Dearing et al. (2005) identified a gap in the literature. They stated that few studies simultaneously examined factors, such as frequency of session attendance, duration of

treatment, treatment satisfaction, and therapeutic involvement to predict treatment success. Addressing the gap in research, I examined frequency of session attendance and duration together.

The identification and measurement of the independent variable, intensity, arose from the literature. Numerous outcome studies (Fiorentine, 2001; Hubbard, 1984; Hubbard et al., 2003; Simpson, 1981; Simpson et al., 1999) provided evidence that remaining in treatment for an adequate period of time, at least 90 days, was critical for treatment effectiveness. Additionally, Fiorentine and Anglin (1996) found that higher attendance in group and individual counseling sessions was associated with lower levels of relapse, even when the client did not complete the planned six month outpatient treatment regimen. Noteworthy, was that the same studies examined these variables, frequency and duration, separately rather than as a function of each other.

In this study, defining intensity as a function of both contact time (frequency) and duration utilized prior outcome studies' findings and theoretical underpinnings of the chronic care model. The manner in which intensity was measured presented a more precise value of interaction between addiction professionals and clients than either frequency of treatment or duration achieved alone. It provided a means to compare clients who interacted less or more frequent over a shorter period of time with clients who had more opportunities for interaction due to a longer length of stay.

By definition, a chronic illness progresses over time. From this perspective, defining intensity as a function of contact time (frequency) and duration was logical. This study viewed addiction as a chronic illness necessitating offering treatment services over a longer period of time to appropriately address and adjust to changes over time. Intensity, as defined

by this study, informs the academic body of knowledge that frequency and duration are of equal importance in addiction treatment settings, and neither variable should be examined in isolation from each other.

Although only indirect comparisons with other outcome studies were possible, the manner in which intensity was defined adds to the significance of this study by offering a way to examine frequency and duration simultaneously. The way in which intensity was defined and measured can be used in future studies to explore how both variables together impact treatment outcomes.

Findings in this study suggest that shorter burst of interactions among addiction professionals, clients, and family members over a longer period of time may be more effective in terms of client engagement. From a chronic care perspective, this finding makes sense. Chronic care refers to a continuum of care required over a prolonged period of time from an integrated care network of professionals, ancillary support staff, and an informal network of family, friends, and community-level organizations. Frequency, timing, and mode of interaction occur when and where the individual may require assistance to attain and maintain sobriety.

As mentioned previously, Dennis and Scott (2007) explained that the acute care paradigm supposes that clients entering treatment should be cured and able to maintain abstinence following a single episode of specialized treatment. Traditional addiction treatment is typically short-term and episodic and primarily focuses on the client solely. Traditional treatment programs' infrastructure generally do not allocate resources, staff or financial to support ongoing interactions (Dennis and Scott, 2007).

Gender

In this study, the ratio of males to females was approximately 3:1, which was similar to Brady and Ashley's (2005) report. They stated that in 2002, the male to female ratio in treatment facilities was 2.3:1. Greenfield et al. (2007) reported that when compared to the prevalence of substance abuse and dependence among women in the general population, fewer women were in treatment programs compared with men. Despite the disproportionate number of men to women in this study, women in RAH had the highest probability of engagement. Whereas, for females in the Conventional group, probability of engagement mirrored males in the RAH group.

Marsh et al. (2004) contended that both men and women benefit from treatment, especially when offered a comprehensive package of services such as educational, housing, and income support. Greenfield et al.'s (2007) systematic analysis showed that gender alone was not a specific predictor of treatment outcome. When treatment outcomes were examined as a function of gender, mixed findings became apparent. But when researchers noted gender differences, women seemed to come into treatment with more psychosocial problems, received more services, and had better outcomes than men in terms of reduction of substance use post treatment.

The authors pointed out that specific characteristics such as socioeconomic factors (education, employment, and dependent children), history of victimization, and co-occurring disorders may differentially affect treatment outcomes by gender. For example, in Greenfield et al.'s (2007) review, findings suggested that the presence of a mood or anxiety disorder had a negative impact on treatment outcomes. In this study, although the majority

of clients (87.80%) had a co-occurring disorder, its presence was not statistically significant. The low number of clients without co-occurring disorders may partially explain this result.

For men in the RAH group, the probability of engagement was nearly the same as females in the Conventional group. Men in the Conventional group consistently had the lowest probability of engagement. It is not surprising that men in the Conventional group had the lowest probability of engagement. The findings point toward two factors playing key roles in client engagement, family involvement and being female. However, marijuana users, regardless of gender, family involvement, or type of treatment, every time had a markedly lower probability of engagement.

Drugs of Choice

This study's results mirror Dennis, et al. (2002) who reported that when marijuana was examined as part of outcome studies, such as DARP, TOPS, and DATOS individuals demonstrated the smallest amount of change in usage patterns when receiving treatment. Women in RAH who were marijuana users had the highest probability of engagement, albeit small (.35), when compared to other drug users (opiods, alcohol, and polysubstances [.98]).

For all other marijuana users (males in RAH and males and females in Conventional groups), findings suggest that family involvement and RAH or traditional treatment had little effect on engagement. It was likely that other variables not examined in this study impacted engagement for marijuana users.

The addiction field recognizes that long-term use of marijuana is associated with significant cognitive and psychosocial impairments. These impairments manifest themselves in terms of attention, memory, ability to process complex information, and motivation, and can last for weeks and months after cessation (Solowij & Battisti, 2008). Impaired cognitive

function and amotivational behavior may have contributed to the lack of engagement in spite of family involvement or type(s) of treatment modalities.

Copeland et al. (2001) stated that despite an increased understanding of harmful effects of marijuana, a paucity of information exists about intervention needs of marijuana users who seek treatment. Prochaska and Norcross (2001) stated that the challenge faced by addiction professionals is to identify which interventions and processes of change promote effective ways to move clients through the stages of change. It seems plausible that addiction professionals were not implementing most effective interventions that move marijuana users toward the action stage of change. Although these interventions, for example, journaling or role playing, may be helpful and appropriate for clients using drugs other than marijuana, they may be neither appropriate nor helpful for clients using marijuana.

Copeland et al. (2001) and Dennis et al. (2002) supported this notion, stating that there is a wide range of addiction treatment modalities; however, systematic development of specific strategies designed for marijuana dependence has lagged. Given that multiple treatment episodes over several years is the norm, regardless of drug(s) of choice, further research identifying the most efficacious strategies to achieve and sustain recovery for clients using marijuana is critical.

Past AOD Treatment

This study contrasted treatment first-timers with clients who had prior treatment episodes. The percentage of clients in this study that reported a history of addiction treatment (85.37%) was higher than in other studies. For example, Siegal et al. (2002) and

Zule and Desmond (2000) all reported 60%. Dennis and Scott (2007) noted that sustained abstinence usually takes three to four episodes of treatment over a number of years.

In the RAH group, prior treatment was expected for the majority of clients. RAH actively markets to individuals experiencing nested and tenacious addiction related problems. These individuals usually have experienced multiple treatment episodes. Traditional treatment is marketed to individuals with addiction related problems, regardless of severity. These individuals may not have participated in previous treatment.

I began this study expecting prior AOD treatment would have a positive effect on engagement. I presumed individuals who participated in AOD prior treatment would be savvy, in terms of knowing and embracing treatment expectations, for example regular attendance at 12-step meetings, obtaining a sponsor, or completing written assignments as part of the treatment process. However, the findings from this study suggest that prior treatment history generally had a negative rather than positive impact on engagement.

When clients had prior AOD treatment their probability of engagement decreased. Low probability of engagement was predominantly evident for marijuana users, regardless of gender. Nonetheless, as consistently noted throughout this study, females who participated in RAH fared the best. Findings showed that for female other drug users who participated in RAH, the probability of engagement remained high and only decreased slightly when they experienced prior AOD treatment.

For females and males in the Conventional and RAH groups, respectively, who were other drug users, probability of engagement decreased slightly when they experienced prior AOD treatment. Without prior treatment their probability of engagement was .85 and dropped to .70 when they experienced prior AOD treatment. In contrast, male other drug

users in the Conventional group had a low probability of engagement (.30) when they experienced prior AOD treatment, but not nearly as low as marijuana users.

The present study's findings were supported by Hser et al. (1999). They reported that multiple episodes in treatment programs led to inferior outcomes in terms of abstinence from illicit drug use. Rather than past treatment experience, Hser et al. explained that experiencing positive relations with addiction professionals and clients' compliance with treatment increased the likelihood of favorable treatment outcomes. Brewer, Catalano, Haggerty, Gainey, and Fleming's (1998) meta-analysis of 69 studies showed that prior treatment had a longitudinally predictive relationship with continued heroin use. Brewer and colleagues explained that although prior treatment cannot be manipulated by treatment interventions, results seemed to indicate that a subgroup of opiate addicts may require intensive treatment efforts to produce positive outcomes. However, the authors did not elaborate on the types of strategies needed to produce positive outcomes.

It is unclear why previous AOD treatment had a negative impact on engagement. As noted by Cacciola, Leggett Dugosh, and Camilleri (2009), clients with no prior history of AOD treatment reported less serious addiction related problems, but lower levels of treatment readiness than clients who had a prior treatment history. Based on Cacciola et al.'s report, in the present study less time and energy would be expended to resolve addiction related problems with more time and energy focused on activities and behaviors that reflect engagement.

Future studies warrant examining client-level characteristics that may be evident when a person enters treatment for the first time but may not be apparent after multiple episodes. Some examples of client-level characteristics include level of motivation,

socioeconomic factors, amount of perceived employer support, and past history of physical or sexual trauma. As well, specific family-level characteristics may also change over numerous treatment episodes, which may impact treatment outcomes. For example, as the number of treatment episodes increases, a family's sense of support may incrementally decrease or attachment injuries may increase. Looking at the impact of client- and family-level characteristics merits further study.

Prochaska and DiClemente's (1984) stages of change in their transtheoretical model described a process in which clients move through specific stages as they try to change patterns or behaviors that cause problems in their lives. The model involves going through a set of five discrete stages of change. For individuals addicted to AOD, they go through these stages in a spiral manner rather than linear before achieving sustained long-term behavior change (Prochaska & DiClemente, 1984).

Frustration can ensue for individuals who experienced multiple treatment episodes and not achieve the maintenance stage of change. This frustration has the potential to leave an individual with feelings of failure and low self-efficacy. Self-efficacy is the belief in one's ability to succeed in attaining certain goals. Individuals' perceived past failures and low self-efficacy may lead to self-defeating behaviors, which leads to feelings of failure and the inability to stay engaged in the treatment process.

Age Range

Although the sample included more clients who were ≤ 30 years old (65.85%), this age range did not portray the most current statistic from the Federal Government. SAMHSA (2010) recently reported that treatment admissions went from 6.60% in 1992 to 12.20% in 2008 for persons aged 50 years and older.

In this study, age range was not statistically significant. The absence of an association between age range and engagement may be attributed to using only two ranges in this study, ≤ 30 and ≥ 31 years old. Categorizing age in smaller increments may have provided more explicit information about client engagement.

Quality of Life

QOL provided a secondary focus for this study. Because responses were low, QOL results were inconclusive. Several methodological limitations in this study provide an explanation for this outcome.

Measuring QOL required phone contact with clients and family members. The low number of responses may be related to the length of time between the last day of treatment and post treatment phone contact. Some of the case records went back as early as 2005 and others as late as December 2008. Posttreatment phone calls to these individuals and family members occurred from March through April 2009. Consequently, one to three years had elapsed since treatment occurred. It seems likely that other life events which occurred over this span of time, had little connection to participation in any type of treatment program, and affected clients' and families' QOL.

The second methodological limitation was that the MILQ instrument used to examine QOL may not be suitable for persons with addiction. Avis et al. (1996) initially developed this instrument for persons with cardiovascular disease. Although Smith and Larson (2003) used this same instrument for persons with substance abuse, they recommended further testing. As well, testing is needed to determine if the instrument is appropriate for family members.

The need exists for further research in the area of QOL. Donovan et al. (2005) indicated that while 7,000 QOL studies exist in the biomedical field, only 15 studies measured QOL in alcohol dependent persons and 6 studies examined persons with co-occurring diagnoses. Rudolf and Watts (2002) stated that the addiction research community rarely includes QOL indices in treatment studies.

Measuring QOL in an objective and reliable way rather than anecdotally provides addiction professionals with information that could positively impact client outcomes. An instrument that is short, not burdensome to complete, cross culturally sensitive, and easy to use, score and interpret addresses Franken and Hendricks' (2001) concern about the impracticality of administering a lengthy battery of questions or multiple instruments in treatment settings. Avis et al. (1996) previously tested the MILQ for internal consistency, test-retest reliability, and validity. Using scores from these tests could be used as a baseline to determine the reliability and validity of the instrument for individuals post treatment for addiction.

RAH's philosophical, theoretical, and clinical practice suggest that QOL should improve. As Schrim (2006) indicated, active involvement of family members in treatment and continuing care becomes crucial to enhance QOL.

Limitations

Methodological

Several limitations warrant discussion. First, the sample included a small number of clients (N = 82) who were in the RAH group (n = 41) and Conventional group (n = 41). These clients were not randomly assigned to either one or the other type of treatment, although statistical control served as an alternative control method. Additionally, data were

derived from only one primary behavioral health program. These two factors made it impossible to generalize findings, but seemed broad across client characteristics such as gender, drug of choice, and past AOD treatment.

A second limitation originated because the behavioral health program used in this study was not a representative sample of programs in the AOD treatment service system. The location in a suburban area, as well as the cost associated with RAH, created sample homogeneity. Some of the more multi-disadvantaged clients were thereby unintentionally screened out, which created insufficient representation of a variety of demographic variables such as ethnicity, race, education, and socioeconomic status. Because of this insufficient representation, these specific demographic variables as predictors of engagement could not be investigated and suggest the need for further research.

Data Integrity and Quality

Prior to data collection two data integrity and quality issues, accessibility of case records and inconsistent documentation, were raised and addressed. As the first step to address accessibility and inconsistency, the director of the program identified an addiction professional familiar with both paper and electronic charting processes. Because of the designee's knowledge of the case record and documentation procedures, only chart sections that offered the most detailed information were copied for data collection purposes.

When case records could not be easily located, the designee solicited the assistance of the director to determine if case records could be obtained. Prior to the initiation of an electronic record keeping system, paper case records were maintained within the program. However, sometimes addiction professionals retained case records in their own filing system, and at other times records were filed in a number of places within the facility and

parent organization. The designee expended significant time locating applicable aspects of case records. When case records were unattainable, subjects were not included in the sample.

Documentation in paper case records did not always include the number of minutes addiction professionals interacted with clients and/or family members. To address this concern, the designee reviewed five randomly selected case records from RAH and Conventional groups and calculated the average number of minutes per week clients and family members interacted with addiction professionals.

Out of 82 case records, approximately 20% (16) RAH case records were paper files and the remaining were electronic files. In these 16 case records, contact time between addiction professionals and clients was not documented. Instead, average number of minutes was used. For example, if the addiction professional did not identify a specific timeframe for a face-to-face session, then I used average contact time for a face-to-face session, 50 minutes.

Obtaining accurate contact time was not a concern after the introduction of the electronic case record system. This system required addiction professionals to enter the number of minutes for each interaction prior to exiting the electronic case record system.

When determining client engagement an addiction panel was used. Mertens (1998) stated that the use of expert judgment augments objectivity when interpreting results. A process was followed for making decisions about engagement. Prior to any member of the panel reviewing case record documentation individually, the panel reviewed as a whole, approximately 25% of the RAH and Conventional groups' case records. Panel members did not review their own list of case records until agreement had been reached.

Decision making processes were established to ensure objectivity when determining engagement. If a panel member could not distinguish between engagement and no engagement, the case record was reviewed by the other two panel members. In two cases, panel members made the decision that documentation was too scant to determine engagement, and as a result both case records were eliminated from the sample.

Data Analysis

Data obtained from a quasi-experimental study cannot unequivocally establish causal relationships. However, logistic regression was a powerful and useful statistical tool for correctly predicting engagement, given the set of predictor variables in this study. I completed two critical steps in evaluating the appropriateness of the model. For the first step, I checked the underlying assumptions involved in logistic regression and transformed a variable, as appropriate. For the second step, I examined the model's fit, or how well the model described the observed data. The adequacy of the fitted model was checked to avoid misleading or incorrect inferences. Sarkar and Midi (2010) stated that inferences from analysis where there has been no evaluation of goodness-of-fit should be viewed with some skepticism. In this study, the final model was the most parsimonious and best fit.

In summary, limitations were acknowledged at the outset of this study project, openly articulated, and methodologically addressed that would not threaten the validity of the conclusions. The results of this study suggest that RAH as a new treatment approach outweigh the limitations

Contributions to the Addiction Treatment Field

In view of the chronic course of addiction, the results in this study are an important indication of the effectiveness of RAH. Findings provided evidence that RAH's

philosophical perspective of how treatment services can be implemented positively influenced client engagement. RAH responds to the chronic nature of addiction by partnering with family members and providing short bursts of interaction over a longer period of time. RAH mirrors the chronic care model by actively involving family members and tapping into traditional treatment modalities in ways that encouraged engagement and continuity of care.

Currently, a ten-year gap exists between onset of abuse and obtaining treatment. This gap leads to adverse personal consequences and family instability (NIH News, 2007). Without treatment or only sporadic treatment, AOD related problems become more complex, convoluted, and tenacious. In this study, RAH increased engagement 6.30 times, providing a solid foundation for further research. Based on these findings, the addiction field has the potential to close the ten-year gap and prevent the progression of long-term consequences for individuals, families, communities, and society.

This study involved recognizing and embracing the importance of DiClemente's (2003) and Connors et al.'s (2001) contribution to the addiction field, which resulted in operationalizing their work on the stages of change as related to addiction treatment. Their work was used to develop a guideline, *Recovery Behaviors Indicative of Action Stage of Change* (Appendix B), which delineated behaviors addiction professionals expect to observe when clients are in the action stage of change.

While the addiction professional panel contributed to initial tests of validity concerning this guideline, further tests for validity and reliability are warranted and suggest a future area for research. Monitoring engagement behaviors, such as those outlined on the tool, will prove clinically useful for addiction professionals who desire to assess the

effectiveness of treatment. The guideline provides a quantifiable way to determine if clients exhibit behavioral patterns reflective of the action stage of change.

Recommendations for Future Studies

In addition to the above mentioned recommendations for future studies, the following recommendations for future studies are offered:

1. A replication study using a larger and more heterogeneous randomly selected sample may assist in determining the degree to which findings from this study are generalizable to other populations.

   Rationale: A comprehensive picture concerning women's engagement in the treatment process may be obtained if socioeconomic characteristics and history of victimization are collected; underscoring the point that examining gender in addition to specific characteristics warrants further investigation.

2. Examine client engagement in the treatment process in relation to client and family increases in higher quality of marital and/or family relationships.

   Rationale: The quality of marital relationship can affect the couple's parenting behaviors, which in turn impacts the adjustment of the children. It is imperative to break the cycle of addiction for future generations.

3. Test the MILQ for validity and reliability for individuals with an addiction to AOD and key family members.

   Rationale: No addiction related QOL instrumentation currently exists for clients and family members.

4. Use larger sample sizes to measure QOL.

Rationale: Future studies using larger sample sizes may fully resolve if QOL for clients and key family members vary post discharge.

5. Examine the influence of memory, cognitive function, and motivation for treatment for marijuana users.

   Rationale: In this study, although RAH showed significantly higher rates of engagement, marijuana users fared worse overall than other drug users in terms of engagement in the treatment process. Future studies may lead to the identification of successful treatment strategies specific for marijuana users.

Conclusions

The incidence of addiction, its impact on family systems, our communities, and the healthcare system suggest that finding efficacious and cost-effective strategies that promote client engagement in the treatment process is crucial.

McLellan et al. (1999) suggested that clients receiving addiction treatment services benefited positively when they received a broader array and increased frequency of services over a longer period of time. The structure of RAH supports the contentions of McLellan et al. (1999) by providing ongoing, 24 hour, seven days per week interactions with family members and clients in conjunction with the clients' participation in traditional treatment modalities throughout a 90 day timeframe. The duration of RAH is in line with early outcome studies. As early as 1981, based on supporting evidence, Simpson (1981) recommended that drug abuse treatment continue for at least three months to maximize positive outcomes.

This study suggests that RAH was significantly responsible for clients' engagement. The findings highlight the importance of involving family members as partners throughout

the treatment process. Similarly, this study provides empirical support for implementing interventions based on the chronic care model. It was shown that lower levels of treatment intensity were related to higher probability of treatment engagement.

The findings yielded critical information about family involvement with AOD treatment practices. As well, it provided an important contribution to a growing body of research that supports the viewpoint that addiction should be treated from a chronic care perspective. Implementation of both chronic care and family systems models signifies a re-design of addiction services. This transformed delivery of AOD services includes ongoing systematic attention to managing addiction as a chronic condition necessitating ongoing and periodic monitoring, intervention, and treatment in conjunction with the family system, whenever feasible.

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APPENDICES

Appendix A

Multidimensional Index of Life Quality

MULTIDIMENSIONAL INDEX OF LIFE QUALITY

(MILQ)

SELF-ADMINISTERED VERSION

INSTRUCTIONS

Please answer each of the following questions as accurately as possible. For each question, circle the number corresponding to your answer, as shown in the example below.

EXAMPLE: For the following question please indicate how important it is to you on a scale that ranges from 1- **not** important, 2- somewhat important, 3- important, to 4- **very** important.

PLEASE CIRCLE THE APPROPRIATE NUMBER

How important to you is…	*Not Important*	*Somewhat Important*	*Important*	*Very Important*
#1: A clean and comfortable environment?	1	2	(3)	4

If a clean and comfortable environment were important to you, then you would circle "3" corresponding to *Important*, as shown in the above example.

SECTION A

The first few questions are about your health and overall life satisfaction.

A.1. In general, how would you say your health is right now? PLEASE CIRCLE ONE:

1	2	3	4	5
Excellent	Very Good	Good	Fair	Poor

A.2. On a 7-point scale where "1" indicates complete dissatisfaction and "7" indicates complete satisfaction, which number comes closest to how you feel about your life as a whole these days? PLEASE CIRCLE ONE NUMBER:

1	2	3	4	5	6	7
complete dissatisfaction						complete satisfaction

A.3. Imagine a ladder with 10 steps representing the "Ladder of Life". The top of the ladder, "10", represents the best possible life for you. The bottom of the ladder, "1" represents the worst possible life for you. On which of these 10 steps of the ladder do you feel you personally stand at the present time?

[ ]

PLEASE ENTER A NUMBER FROM "1" TO "10" IN THE BOX THAT BEST REFLECTS WHERE YOU STAND AT THE PRESENT TIME

SECTION B

The purpose of this part is to find out about different areas that affect people's overall quality of life. For each item below, please indicate how **important** it is to you on a scale that ranges from 1- not important, 2- somewhat important, 3- important, to 4- very important.

PLEASE CIRCLE THE APPROPRIATE NUMBER

How important to you is...	*Not Important*	*Somewhat Important*	*Important*	*Very Important*
B.1. Your physical health in general?	1	2	3	4
B.2. Your ability to physically do basic daily activities without assistance from others?	1	2	3	4
B.3. Being in good spirits?	1	2	3	4
B.4. Your relationship with your spouse or partner? [PLEASE CIRCLE "NONE" IF YOU DO NOT HAVE A SPOUSE OR PARTNER]	1	2	3 NONE	4
B.5. Your social life with family, friends, and community?	1	2	3	4
B.6. Your financial situation?	1	2	3	4
B.7. Your ability to concentrate and to remember things?	1	2	3	4
B.8. Your relationship with your doctors and other medical staff?	1	2	3	4
B.9. Feeling productive?	1	2	3	4

SECTION C

For the following questions please circle the number on the scale that best indicates how **satisfied** you are with each area of your life **at the present time**.

How satisfied are you with...	Very Dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neither Satisfied nor Dissatisfied	Somewhat Satisfied	Satisfied	Very Satisfied
C.1. your overall mood?	1	2	3	4	5	6	7
C.2. how hopeful you feel about the future?	1	2	3	4	5	6	7
C.3. how happy you are?	1	2	3	4	5	6	7
C.4. feeling calm?	1	2	3	4	5	6	7
C.5. how you feel physically?	1	2	3	4	5	6	7
C.6. your energy to do what you want?	1	2	3	4	5	6	7
C.7. being free of pain?	1	2	3	4	5	6	7
C.8. the physical exercise you get?	1	2	3	4	5	6	7
C.9. being able to perform tasks for yourself?	1	2	3	4	5	6	7

How satisfied are you with...	Very Dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neither Satisfied nor Dissatisfied	Somewhat Satisfied	Satisfied	Very Satisfied
C.11. being physically able to take vacations or trips?	1	2	3	4	5	6	7
C.12. physically being able to work?	1	2	3	4	5	6	7
C.13. your family letting you do the things you want?	1	2	3	4	5	6	7
C.14. being able to help family members by babysitting, caring for relatives, etc.?	1	2	3	4	5	6	7
C.15. the amount of time you spend with friends?	1	2	3	4	5	6	7
C.16 participating in community activities?	1	2	3	4	5	6	7
C.17. the activities you do with your spouse/partner? [PLEASE CIRCLE "NONE" IF YOU DO NOT HAVE A SPOUSE OR PARTNER.]	1	2	3	4 NONE	5	6	7
C.18. the amount of affection your spouse/partner expresses toward you? [PLEASE CIRCLE "NONE" IF YOU DO NOT HAVE A SPOUSE OR PARTNER.]	1	2	3	4 NONE	5	6	7
C.19. being able to confide in your spouse/partner? [PLEASE CIRCLE "NONE" IF YOU DO NOT HAVE A SPOUSE OR PARTNER.]	1	2	3	4 NONE	5	6	7

How satisfied are you with...	Very Dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neither Satisfied nor Dissatisfied	Somewhat Satisfied	Satisfied	Very Satisfied
C.20. your sex life?	1	2	3	4	5	6	7
C.21. feeling alert?	1	2	3	4	5	6	7
C.22. your ability to concentrate?	1	2	3	4	5	6	7
C.23. your ability to make decisions by yourself?	1	2	3	4	5	6	7
C.24. being able to remember things that happened awhile ago?	1	2	3	4	5	6	7
C.25. your household income?	1	2	3	4	5	6	7
C.26. your ability to pay monthly expenses?	1	2	3	4	5	6	7
C.27. the amount of money you have in savings?	1	2	3	4	5	6	7
C.28. your financial security?	1	2	3	4	5	6	7
C.29. the information you get from your doctor?	1	2	3	4	5	6	7

How satisfied are you with...	Very Dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neither Satisfied nor Dissatisfied	Somewhat Satisfied	Satisfied	Very Satisfied
C.30. being able to ask your doctor questions?	1	2	3	4	5	6	7
C.31. the quality of medical care you are getting?	1	2	3	4	5	6	7
C.32. the support you get from your doctors and other health professionals?	1	2	3	4	5	6	7
C.33. the amount of time your health permits you to work?	1	2	3	4	5	6	7
C.34. being able to do the type of work you want?	1	2	3	4	5	6	7
C.35. feeling productive?	1	2	3	4	5	6	7

C.36. Is there anything else that you wish to add that is important to your quality of life that has not been covered in these questions?

THANK YOU VERY MUCH FOR COMPLETING THIS QUESTIONNAIRE.

Appendix B

Recovery Behaviors Indicative of Action Stage of Change

Behaviors	Check if noted in progress notes and/or discharge summary
Active participation in group and/or individual sessions	
Asking for help when experiencing emotional difficulty	
Calls sponsor or other support persons at times of concern	
Change in social activities to include more non-using activities	
Decision to attend halfway house after discharge	
Limiting use of AOD	
Maintaining a commitment to change when faced with difficulties	
Minimizing contact with others who engage in AOD use	
Obtaining a sponsor	
Participation in a spirituality or faith-based other than a 12-step group."	
Periods of abstinence	
Readily admits he/she is an alcoholic/addict	
Report of participation in 12-step meetings	
Turns to others for encouragement and support for abstinence and for changing the addictive behavior	
Uses alternative coping strategies to deal with emotions, people, and places that trigger the addictive behavior	
Uses other activities to replace the addiction	
Uses relapses (slips) as learning opportunities	
Verbalization about emotional difficulty	
Verbalizes strategies for dealing with cravings or temptations to use	
Willingness to stay on prescribed psychiatric medication regime	

Adapted from:

Connors, G., Donovan, D., & DiClemente, C. (2001). *Substance abuse treatment and the stages of change*. New York: Guilford Press.

DiClemente, C. (2003). *Addiction and change. How addictions develop and addicted people recover*. New York: Guilford Press.

Appendix C

Letter from Director of Behavioral Health Program

PENN FOUNDATION
BEHAVIORAL HEALTH SERVICES
Since 1955

P.O. Box 32
Sellersville, PA 18960-0032
(215) 257-6551

Indiana University of Pennsylvania
School of Graduate Studies and Research
Stright Hall, Room 101
210 South Tenth Street
Indiana, PA 15705-1048

IRB Committee Members:

As the Director of Penn Foundation Recovery Center, I support Kathleen Wisser's dissertation proposal, "*Comparative Study of Traditional and Family-Centered Home Based Addiction Services.*" At one time Kathleen was in the position I presently hold and several other positions for the parent organization, resigning in 2001. Since that time she and I continued a collegial relationship and friendship. Currently, she is not in any type of employment capacity for the Recovery Center or any other program associated with the parent organization, Penn Foundation, Inc.

I grant approval for Kathleen to acquire archival data from 4/1/2002 to 12/31/2008. I plan to identify appropriate case records and provide only data necessary for this study. Kathleen's direct involvement in the case record identification process is nonexistent. Data provided to Kathleen will be anonymous; she will not in any way be able to identify clients who received services either in Rehab at Home or traditional addiction services.

We are looking forward to Kathleen examining treatment effectiveness for Rehab at Home and traditional addiction services. If you should have any questions, please do not hesitate to contact me either via telephone (215-257-9999) or email (tbarlow@pennfoundation.org).

Sincerely,

Todd Barlow, MS
Director of Drug and Alcohol Services
Penn Foundation Recovery Center