

DISSERTATION

CLOZAPINE AND CLUBHOUSE TREATMENT MODEL AND
VOCATIONAL OUTCOMES OF
ADULTS WITH SCHIZOPHRENIA

SUBMITTED BY

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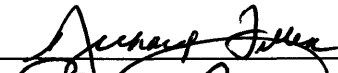
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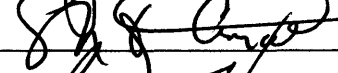
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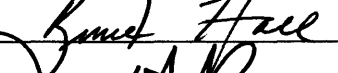
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We hereby recommend that the dissertation prepared under our supervision by
Dennis N. Beckel entitled Clozapine and Clubhouse Treatment Model and Vocational
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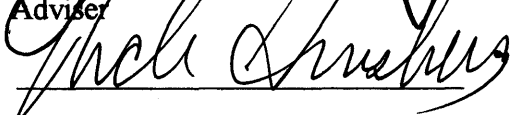
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Abstract of Dissertation

Clozapine and Clubhouse Treatment Model and Vocational Outcomes of Adults With Schizophrenia

This quasi-experimental study of the vocational outcomes of persons with schizophrenia who participated in both of two different psychosocial treatment models and one of two different psychopharmacological treatments. Vocational outcomes of clients requesting vocational rehabilitation services and participating in clubhouse model programs were compared with vocational outcomes of clients requesting vocational rehabilitation services and participating in traditional day treatment programs. Vocational outcomes of clients taking clozapine were compared with those taking other psychotropic medications. Combined effects of the psychosocial treatments and the psychopharmacological treatments was also examined.

Included in this study were 150 clients with schizophrenia, all of whom participated in a cooperative vocational program of the Colorado Rehabilitation Services and the Colorado Division of Mental Health from 7/1/94 to 7/1/96. Successful employment outcomes for these clients were defined as sixty days of continuous employment, or "Status 26".

Clients with schizophrenia who participated in a clubhouse model had significantly higher employment rates than those participating in a traditional day treatment model. Clients with schizophrenia taking clozapine had significantly higher employment rates than those taking other medications. Clients with schizophrenia participating in a clubhouse and taking clozapine did not have significantly higher employment rates than those only participating in clubhouse or those only taking clozapine. However, for those clients taking clozapine only, participating in a clubhouse only or both, had significantly higher employment rates than clients under neither condition.

Four secondary results involving all participants with all diagnoses (n=439) were

provided for future research: a) persons with major mental illness who participated in a clubhouse program had 16.9% better employment outcomes than participants in a day treatment program; b) males and females with major mental illness had equal employment outcomes, whether participating in a clubhouse or day treatment; c) no employment outcome differences occurred between the Denver metropolitan area's and other large cities' day treatment programs, but significantly better employment outcomes were observed in the metro Denver clubhouses than in the other large cities' clubhouses; d) employment data for 1994-1995 and 1995-1996 for all diagnoses showed that 11.4% more clients were successfully employed in the first year of the study than the second.

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In 1968, as CSU student body Vice President, I participated in many demonstrations and sit-ins at several CSU buildings to protest and address such things as relevancy in higher education, “publish or perish,” in loco parentis, funding for the library versus funding football, civil rights, women’s rights, human rights, the war, and so forth. Thirty years later, as a doctoral candidate at CSU, I am both pleased and saddened at what has, and what has not, changed.

Thanks to Joe Daly for confidence and assistance in my getting accepted into the program (you warned me about the research, and you were correct). Thanks to Jim Banning for being there; just enough, but not too much. Thanks to Rich Feller, Sharon Anderson, and Bruce Hall, for your guidance and being part of such a balanced and knowledgeable committee.

Thanks to the real experts in the field: Ruth Arnold at Boulder Mental Health, Tom Barrett and Maxine Bennett at the Colorado Division of Mental Health, Kim Komitor at the Colorado Rehabilitation Services, and Roy Starks at the Denver Mental Health Corporation. I’ll stop the incessant questions for a while.

To those of you who said this would be a “life-altering experience”; you were right.

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Chapter One

Introduction

Beginning in 1988, the Colorado Division of Mental Health and the Colorado Rehabilitation Services funded a cooperative agreement with 14 of the Colorado community mental health centers and agencies, involving the vocational rehabilitation of persons with major mental illness. In 1990, Sandoz Laboratories introduced in the United States a “wonder drug” for schizophrenia called clozapine (Higgins, 1995). Beginning in 1992, many community mental health centers also implemented a treatment model known as the clubhouse. Its primary goal was to assist adults who had major mental illness with their vocational rehabilitation. Six years and nearly five million dollars later, the critical question remains unanswered: have these treatments and programs resulted in successful employment for persons with schizophrenia in Colorado? This is the essence of the problem I examined.

Background

Schizophrenia is a major mental illness that affects approximately one person in every hundred in all countries throughout the world (Falloon, McGill, & Boyd, 1980). In the United States, 100,000 people are newly diagnosed as schizophrenic each year (Long, 1996). In Colorado, The Colorado Division of Mental Health reports that at least 30,000 of its citizens will suffer from schizophrenia (lifetime prevalence) and many will participate in one or more programs at their local community mental health center.

The 1970s and early 1980s were the “dark ages,” in which vocational rehabilitation for persons with severe mental illness was not considered within the mission of either community mental health centers or comprehensive rehabilitation centers (Bond, 1992). Traditionally, people with schizophrenia have participated in day treatment programs

involving case management, recreation, group therapy, and medication management with a minimal attempt or none at employment or vocational rehabilitation. Day treatment or partial care is an intermediate, between inpatient or residential care on one hand, and outpatient care on the other, consists of a planned program of mental health treatment services generally provided at a center, in visits of three or more hours to groups of patients (Sunshine, Witkin, Atay, & Mandersceid , 1992). In the mental health setting, day treatment is defined as the provision of a planned therapeutic program during most or all of the day or in the evening to persons who need broader programs than are possible through outpatient visits, but who do not require 24-hour hospitalization (Redick, Witkin, Bethel, & Mandersfield, 1985).

In 1990, three events dramatically changed these programs and policies for persons with mental illness. First, the Colorado Division of Mental Health, the Colorado Rehabilitation Services, and local community mental health centers saw the need for and the efficacy of vocational rehabilitation, and they began providing supported employment services on a state-wide basis. The local mental health centers both enlisted and pre-qualified interested clients. The local rehabilitation office evaluated each client for enrollment and determined which specific services would be provided and funded. Then, the mental health centers provided vocational rehabilitation services that included job placement, job coaching, transportation, and work clothing. The progress of each client was tracked by both offices, and vocational success was defined as 60 days of continuous employment-referred to as “status 26” (see Appendix A).

Second, a new medication called clozapine, the most significant pharmacological advancement in the treatment of schizophrenia in years, was introduced in the United States (Higgins, 1995). Clozapine was provided to persons with schizophrenia by many mental health centers in Colorado. Clozapine is an effective but expensive treatment for schizophrenia, costing \$6,342 per patient per year (Essock, Hargreaves, Dohm, Goethe,

Carver, & Hipshman, 1996). Vocational counselors learned quickly that by implementing a vocational plan for clients on social security disability insurance (SSDI), they could get the medicine paid for by Medicaid. As a result, the number of clients receiving clozapine increased dramatically in the early 90's. Many of these adults taking clozapine participated in some form of vocational rehabilitation provided through this cooperative project.

Third, beginning in the early 90s, a majority of Colorado mental health centers began implementing a psycho-social rehabilitation model known as the clubhouse model. This model was dramatically different from traditional day treatment programs. Research showed that the clubhouse approach seemed successful for most participants, and it has developed and been implemented on a large scale in the U.S. over the past 40 years by Fountain House (Mastboom, 1992). A multi-year grant from the Special and Experimental Branch of the National Institute of Mental Health, awarded in 1976, enabled Fountain House to inaugurate a national training program. Consequently, hundreds of mental health workers were trained at Fountain House, and many clubhouses came into being (Propst, 1992). In Colorado, six community mental health centers had implemented clubhouses by July of 1996 (see Appendix B).

The target population for this research consists of people diagnosed with schizophrenia in Colorado, who for the most part have frequently turned to mental health care institutions for services. Many of them, over many years, have sustained social and psychiatric impediments, and as a result, may never have held a job or have lost their jobs (Mastboom, 1992). In the clubhouse model, work units are the medium out of which clubhouse relationships are created. It is the source of interaction, satisfaction, and sense of accomplishment, and it is the basis of friendship among members as well as between the staff and members (Jackson, 1992). Work is the central ingredient in the clubhouse and the foundation on which the model has been based (Waters, 1992).

In contrast, in many traditional day treatment models of rehabilitation work is ignored as a rehabilitation tool, either because it does not occur to the staff that there is any merit to work, or they believe it to be basically inhumane to ask people with mental illness to strive for useful occupation (Jackson, 1992). The Clubhouse model is described as more empowering, it is voluntary, and its primary goal is to have members experience and experiment with different employment options, while providing a solid base of operations for its members to meet basic needs, including job, home, food, clothing, financial assistance, education, and a network of friends (Dudeck, & Stein, 1992). Work units at the clubhouse by members and staff keep the clubhouse functioning and provide valuable job skills. Transitional Employment Opportunities (TEP) are based on agreements made with business enterprises that promise to provide specific employment opportunities in a normal working environment with regular compensation. The clubhouse guarantees the employer daily staffing, if needed, by a staff member. The patient member is allowed to keep a position for some months, after which another member takes his or her place (Mastboom, 1992). Finally, a member may wish to acquire permanent employment in the community using the clubhouse for support.

Over the years, clubhouses across the country have developed. They have coalesced around a set of national standards outlining what is required of quality clubhouses and presenting a set of principles that guarantee some consistency in programming (Dudeck & Stein, 1992). The Standards for Clubhouse Programs were promulgated in December, 1990, with the understanding that they should be perceived as a work in progress and therefore be reviewed every 2 years, in conjunction with an international seminar (Propst, 1992) (see Appendix C). The standards are extremely congruent with a belief in the equal worth of all as human beings and a belief the standards are used to inform, educate, and elucidate, then the development of an oppressive hierarchy within a clubhouse would be difficult (Jarl, 1992).

Because the six clubhouses referred to in this study were constituted shortly before and during the research time period (1994-1996), each was in varying degrees of conformity with these standards. Most, but not all, had sent staff members to Fountain House in New York for intensive training in clubhouse standards and operations. The varying levels of compliance to the clubhouse model and their impact upon the study's results and conclusions are discussed in chapter five.

In reviewing the relevant literature, three things become apparent. First, plenty of literature addresses the efficacy of the clubhouse model in general terms; however, there is very little specific data regarding vocational outcomes. Although the clubhouse movement has achieved national prominence, an independent, rigorous, and replicated evaluation of the "success" of this model of rehabilitation is lacking, and questions remain concerning the optimal methods for integrating research into a clubhouse (Malamud, 1985; Neese-Todd & Weinberg, 1992).

Second, despite the amount of literature examining the effectiveness of clozapine in the reduction of negative symptoms, very little research has looked at the vocational success of patients taking clozapine. Findings in the neurobiology of schizophrenia have led to new insights and improved clinical outcomes promoting better social outcomes through increased client-based rehabilitation programs (Jones, 1993). Some research has shown that clozapine can be safely initiated outside an inpatient setting, and reintegration into the community can be enhanced through a combination of treatment with clozapine and rehabilitative and psychotherapeutic programming (Johnson, Littrel & Magill, 1994). The research demonstrates positive therapeutic outcomes of clozapine, but only suggests or implies the same potential for positive vocational outcomes.

Third, no literature, research, or dissertations have examined the employment outcomes of both clubhouse model and clozapine and their comparison to traditional day treatment and other medications.

Problem Statement

The purpose of this research is to analyze what vocational rehabilitation programs and treatment types have resulted in the best employment outcomes for persons with schizophrenia in Colorado. This study examined the relationship between four different treatments provided to 150 participants with schizophrenia and their resulting vocational outcomes. The manipulated variables were defined as two medication categories, known as clozapine and all other medications (Appendix D), and two psycho-social programs, known as clubhouse and day treatment. Any combined effect of these variables was also examined. The dependent variable was defined as status 26 (successful employment for a minimum of 60 days). Relationships between intervening variables, including gender, center location differences (Denver metro, large cities other than Denver metro, and small cities/rural), and year of study were also examined.

Research Hypothesis and Questions

This research hypothesized that adults with schizophrenia who took clozapine medication and participated in a clubhouse treatment model would have more successful employment outcomes than if they used only one or neither of these treatments. When combined with pharmacotherapy, behavioral and educational forms of psychosocial intervention have been documented to be superior to other treatments that offer mainly support and insight (Lieberman, 1994). In order to accurately test this broad hypothesis, I will answer the following questions to create a data base to be analyzed (see Appendix E):

1) How many adults with schizophrenia were enrolled for vocational services as part of the Colorado Division of Mental Health and Colorado Rehabilitation Services supported employment program, from 7/1/94 to 6/30/95 and 7/1/95 to 6/30/96?

2) How many attained successful employment as defined by the Colorado Rehabilitation Services?

3) Are those who took clozapine more likely to have attained successful employment than those who did not?

4) Are those who participated in clubhouse more likely to have attained significant successful employment than those who did not?

5) Are those who took clozapine and participated in clubhouse more likely to have attained significant successful employment than those who did only one of the two (clubhouse or clozapine) or neither?

These questions will be used to examine the following hypotheses:

First hypothesis: Persons with schizophrenia will have better employment outcomes when they participate in a clubhouse program than if they participate in a day treatment program.

Second hypothesis: Persons with schizophrenia will have better employment outcomes when they take clozapine than when they take other medications.

Third hypothesis: Persons with schizophrenia will have better employment outcomes when they participate in clubhouse and take clozapine than when they only participate in clubhouse, only take clozapine, or engage in neither.

Neese-Todd and Weinberg (1992), referring to clubhouse program evaluation, stated: "Research must be a key element in any plan to improve services for people with severe and persistent mental illness. The establishment of a firm research base documenting psychosocial rehabilitation outcomes is essential if the field of psychiatric rehabilitation is to realize its full potential" (pp147). Supportive psychological treatments are widely used, but have not been subjected to controlled outcome assessment to determine efficacy. Their future reimbursement may depend on new outcome research (Lehman, et al., 1995). Lehman concludes that the research on vocational rehabilitation is limited, in that the number of controlled trials is small, especially with regard to any single model of vocational rehabilitation (Lehman, 1995). Lehman provides eight

recommendations for future research, of which two are relevant to this study: a) studies that examine the impact of vocational rehabilitation interventions in combination with alternative clinical treatments (e.g., different pharmacotherapy regimens) will be particularly important; b) studies that compare alternative models of vocational rehabilitation are much needed.

Lehman, et al. (1995), reports that it remains to be seen if either group (clozapine and risperdone), affects deficit symptoms and functional status. As was reported earlier, Robert Buchanan (1995) examined the efficacy and safety of clozapine and made several recommendations for further research. including a focus on the interaction between clozapine treatment and nonpharmacological interventions. More specifically, the most effective maintenance treatment may be a combination of antipsychotic drugs and psychosocial intervention (Schooler, 1996). Liberman (1994) concluded that the efficacy of psychosocial treatments of schizophrenia requires concomitant pharmacotherapy. Although this specific research in connection to vocational outcomes has not been conducted to date, many professionals in the field have expressed a desire for it.

Significance of the Study

A study of treatment approaches for persons with schizophrenia with specific and documentable outcomes is important for three reasons. First, because schizophrenia is a debilitating illness that tortures its victims, their families, and the community they live in, any treatment that can be identified that enhances their quality of life should be promoted. McGlashin (1986) points out that the average income of schizophrenics is lower than that of the victims of other major mental illnesses, that schizophrenia can be chronic and disabling, and that morbidity and mortality are significant. Suicide rates, for schizophrenia are as high as 10%, and the risk of suicide may be even higher in younger persons who have not yet come to terms with their illness (Allen, 1993). Second, millions of dollars have been spent on vocational programs for persons with schizophrenia, in Colorado as

well as in other states, without any specific answers about what works and what does not in terms of employment. On any given day, 600,000 people in the United States are in active treatment for schizophrenia, with an estimated annual cost to society of \$10-20 billion, for hospitalization, social security disability benefits, welfare payments, and lost wages (Torrey, 1983). Future policy decisions and funding sources could be profoundly affected by this information. Third, nearly all persons in the United States with schizophrenia receive either Medicare or Medicaid, and there is an increasing national scrutiny of these programs. A review of the literature on rehabilitative approaches for persons with serious mental illness indicates that few studies have systematically examined program costs and benefits (Clark & Bond, 1995). Successful employment for persons with schizophrenia not only enhances their quality of life, but it makes them taxpayers and reduces their dependence on tax dollars. A study addressing treatment approaches could be invaluable in determining which programs to expand and which to curtail.

Throughout the United States, large sums of federal and state dollars have been funneled into vocational programs for persons with schizophrenia in recent years. This has occurred primarily because of the reduction of symptoms from new medications, and the realization that meaningful employment is an effective treatment for schizophrenia. There is a growing body of evidence that skills training and at least one form of vocational rehabilitation (i.e., supported employment) enhance functional outcomes (Lehman, Carpenter, Goldman, & Seinwachs, 1995). Employment for people with this debilitating disease can provide structure and purpose to their days, income to improve the quality of their lives, contact with their communities, and an overall feeling of normalcy. It has also been documented, by several mental health centers, that employed persons with mental illness require fewer expensive hospitalizations than those that are unemployed. A study completed by the New Day Clubhouse in South Carolina concluded that active participation in its clubhouse significantly reduced both the number of psychiatric

hospitalizations and the length of stay during hospitalizations (Wilkinson, 1992) (see Figures 1 & 2). Because many social programs have come under increased scrutiny in the 1990's, this study could provide meaningful data on where treatment funds should be directed.

Delimitations

Delimitations of this study are as follows:

- 1) This study will be restricted to the State of Colorado;
- 2) Although persons with a variety of major mental illnesses participated in this project, only schizophrenia will be studied;
- 3) Private agencies that provided similar services to this population will not be included because of differences in enrollment criteria, programming, and definitions.

Limitations and assumptions

This research will be somewhat limited by three assumptions. First, it is assumed that successful employment is continuous employment for 60 days. This definition is from Colorado Rehabilitation Services. It can be argued that 60 days is too short a time and that furthermore no quality standards are attached. Second, it is assumed that each center's professional staff is equally competent to administer their program and provide the necessary services to the clients. Third, my research assumes that any other characteristics of the four groups are equal and that assignment to the groups was essentially random.

Definitions

Antipsychotic medication: (also neuroleptics and psychotropics): Pills or injections usually prescribed for psychiatric patients. Several types may be used, depending upon diagnosis: thiorazine, stelazine, haldol, flupenthixol, clozapine. They help calm agitation, diminish destructive behavior and hallucinations, and may bring about some correction of disturbed thought processes. Side effects include changes in the central nervous system

Figure 1

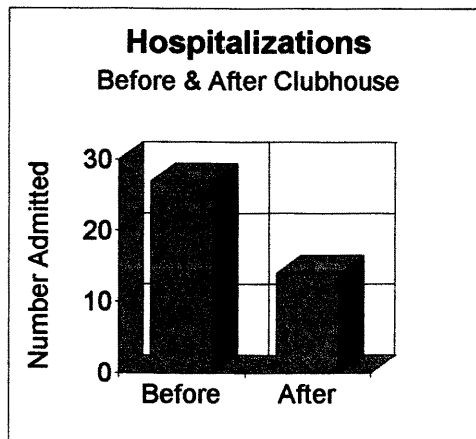


Figure 1. During the study period there were 41 psychiatric admissions of which 27 admissions occurred before the participants became members and 14 occurred after they became members (n=41).

Figure 2

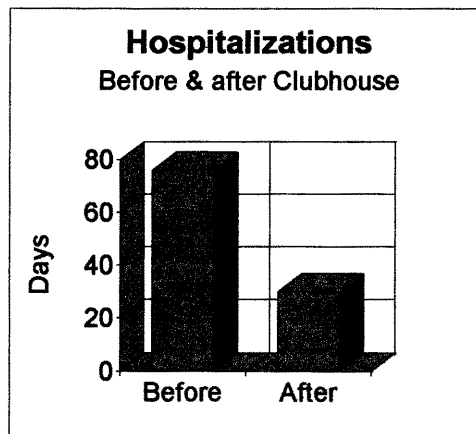


Figure 2. During the study period there were 2,064 hospital days before the study members had become members of the clubhouse and 420 hospital days after, resulting in an average length of 76.44 days before and 30 days after membership (n=41).

affecting speech and movement, and reactions affecting the blood, skin, liver, and eyes.

Clozapine (Clozaril): Developed by Sandoz Laboratories for the reduction of negative symptoms of schizophrenia; introduced in Europe in the 70s and approved for use in the U.S. in 1990. Administration of clozapine requires the regular monitoring of a client's blood because of a potentially lethal side effect (agranulocytosis). Clients must have tried and had no or unsatisfactory results with two other antipsychotic medications before being eligible for clozapine.

Clubhouse model: A psychosocial rehabilitation program that is client-centered and has as its primary focus experimentation with employment options and ultimate success with meaningful employment. The clubhouse model was first developed by Fountain House in New York City and is recognized as the standard for such programs. Fountain House provides a standard training program for prospective providers throughout the United States.

Colorado Rehabilitation Services (CRS): A state agency primarily funded and regulated by the federal government and administered by state governments, with the goal of providing vocational services to persons with disabilities in Colorado.

Community Mental Health Center: Most centers are private, not for profit agencies, funded by federal, state, county, city governments and agencies as well as a variety of private sources. They provide a variety of mental health services to people in a specific catchment area usually, but not always, defined by county borders.

Day Treatment Program: The traditional method of providing a variety of services to persons with major and persistent mental illness includes case management, medication management, independent living, individual and group therapy, recreation, vocational services, and hospital liaison services to ensure stability, continuity, and integration of treatment. Also known as partial care or partial hospitalization.

Delusion: A fixed belief that has no basis in reality. Those suffering from this kind of disturbed thinking are often convinced they are famous people, are being persecuted, or are capable of extraordinary accomplishments.

Hallucination: An abnormality in perception. Seeing, hearing, smelling, tasting, or feeling things that are not there.

Job coaching: A supported employment component that involves shadowing, training, and supporting a person with mental illness at their place of employment by a trained staff member or client.

Mental illness: A substantial disorder of thought or mood which significantly impairs judgment, behavior, capacity to recognize reality or ability to cope with the ordinary demands of life; caused by physiological changes springing from genetic, toxic, infectious psychosocial or traumatic influences.

Multiple Personality Disorder (Split Personality): A Disassociative Identity Disorder, formerly named Multiple Personality Disorder, characterized by the presence of two or more distinct identities or personality states that recurrently take control of the individual's behavior accompanied by an inability to recall important personal information too extensive to be explained by ordinary forgetfulness.

Neuroleptic-resistant Schizophrenia: Persistent positive symptoms (delusions, hallucinations), disorganization (incoherence, loose associations, inappropriate affect, poverty of thought content), or negative symptoms (associality, anhedonia anergia, avolition, and flat affect), or some combination thereof, despite two or three adequate trials of neuroleptic drugs.

Paranoia: A tendency toward unwarranted suspicions of people and situations. Those with paranoia may think that others are plotting against them or ridiculing them. It falls within the category of delusions and hallucinations.

PASS Plan: An abbreviation for "plan for achieving self support" which because of

a client vocational treatment plan provides for favorable adjustments in Social Security rules and payments to recipients. These adjustments can prevent a decrease in payments while a recipient tries employment, and can finance a variety of employment needs and business ventures.

Psychiatric Rehabilitation: The systematic utilization of a combination of specific modalities to assist in the community rehabilitation of persons with psychiatric disabilities (e.g., case management, independent living, supported employment). Also called psychosocial rehabilitation (the terms will be used interchangeably).

Psychosis: Any major mental disorder of organic or emotional origin, marked by disorganization and changes of personality and the loss of contact with reality, often with delusions and hallucinations.

Schizophrenia: A mental illness caused by a biochemical imbalance in the brain, characterized by hallucinations, delusions, voices, paranoia and disconnected thinking. There is no known cure. Schizophrenia has a genetic component, and has a lifetime world wide prevalence of one to one and one half percent. The diagnosis is determined by the residing psychiatrist at the mental health center as defined by the DSM IV.

Social Security Insurance/Medicaid: A federal program for persons with a disability who became disabled before they had paid the required amount into the social security program through lifetime employment. Entitlement amount is determined by congress and is currently set at \$431.00/ month. The corresponding medical insurance known as Medicaid pays for clozapine.

Social Security Disability Insurance/Medicare: A federal program for persons with a disability who became disabled after they had paid the required amount into the social security program through lifetime employment. Entitlement amount is based upon total contribution to the social security program. The corresponding medical insurance is Medicare, which does not pay for clozapine.

Status 26: A term used by vocational rehabilitation agencies to define successful employment as sixty days of continuous employment.

Supported employment: The Rehabilitation Amendments of 1986 (revised in 1992) defined SE to include these features: client's work for pay (preferably the prevailing wage) as a regular employee in integrated settings (and in regular contact with non-disabled workers), receiving ongoing support, and intended for individuals who, because of the severity of their handicaps, would not traditionally be eligible for Vocational Rehabilitation services (Bond, 1996; Wehman, 1988).

Tardive dyskinesia: A condition that usually develops in schizophrenics who are older and who have been on antipsychotic drugs for many years. This side effect is characterized by involuntary movements of the tongue and mouth, sometimes of the arms and legs; it is more common in women than in men.

Transitional Employment (TEP): An integral part of a clubhouse, based upon agreements made with employers who promise to provide specific jobs to members which provide for real job experience in a normal working environment with regular compensation. The clubhouse guarantees staffing in that position by a member or, if needed, a staff member. A member usually holds the position for six months, then another member takes his or her place.

Treatment: The giving of therapy or remedies to relieve symptoms. Treatment in psychiatry is often a combination of medication, counseling, and recommended activities.

Work units: All non paid functions of the clubhouse needed for the continued functioning of the clubhouse carried out jointly by the staff and members, including clerical work, food service, tours, maintenance, landscaping.

Summary

This study, then, is designed to examine available data from the Colorado Division of Mental Health and the Colorado Rehabilitation Services on the supported employment

outcomes of persons with schizophrenia during the program years 1994 to 1995 and 1995 to 1996. This data allowed the comparison of the effectiveness of two medication regimens and two different program types as regards employment outcomes. The combined effect examined the hypothesis that the medication regimen clozapine, in conjunction with the program clubhouse, provided the best employment outcomes for persons with schizophrenia. It is hoped that the findings of this research can facilitate future funding and program design in the treatment of persons with schizophrenia and promote further research in this field.

Chapter Two: Review of Literature

The literature in seven major categories will be examined for this study. They include Schizophrenia, Schizophrenia and Psychiatric Rehabilitation, Schizophrenia and Psychotropic Medications, Clozapine, Day treatment, Clubhouse Model, and Vocational Outcomes. In addition, the last two categories will provide an examination of any strengths and deficiencies in the literature, and a summary. This review is not intended to be a comprehensive review of these seven categories, but rather a review of the literature particularly relevant and useful in the development of this study, and of the salient points relevant to the hypothesis of this study.

Schizophrenia

Schizophrenia is a severe mental disorder that affects approximately one percent of the population worldwide (Faloon, McGill & Boyd, 1980). It is characterized by delusions, auditory and visual hallucinations, paranoia, and bizarre behavior. The predominant theory is that schizophrenia is an imbalance in brain chemistry, usually exacerbated by stress. It has an equal prevalence between genders and ethnicities. Onset for men is between the ages of 15 and 25, whereas the onset for women is generally between 25 and 35. The onset of schizophrenia before the age of 10 and after the age of 50 is rare. Patients may feel that their thoughts are under the control of someone else, or that thoughts are actually put into or taken out of their heads. Their outward behavior is characterized by social withdrawal, self-neglect, blunted affect and speech disorders. While there is no cure for schizophrenia, and 40% to 60 % of patients will remain significantly impaired for their entire lives, 20% to 30% are able to lead a somewhat normal life. The average positive outcome for schizophrenia is worse than for any other mental illnesses. It is chronic and disabling, and the morbidity and mortality rates are significantly higher (Grebbe & Cancro, 1989).

Patients with schizophrenia occupy over 30 % of the total number of hospital beds in psychiatric hospitals (Keith, Reigier & Rae, 1991). On any single day, there are 2,000,000 schizophrenics in the United States, and in any one year, there are 2,000,000 new cases arising worldwide (Maxmen, & Ward, 1995). Twenty percent attempt suicide; completed suicide rates are as high as 10%. The risk of suicide may be even higher in younger persons who have not yet come to terms with their illness (Allen, 1993; Van Hasselt, & Hersen, 1994). The cost to American society for hospitalization, social security disability benefits, welfare payments, and lost wages is estimated to be between 20 to 50 billion dollars annually (Torrey, 1983 ; Keith, Regier & Rae, 1991). The literature on schizophrenia consistently underscores the human, social and financial costs, and the resulting need for more effective treatments.

In the DSM-IV, the essential features of schizophrenia are (a) a history of acute psychosis with either delusions, hallucinations, incoherent speech, catatonia, or flat affect; (b) chronic deterioration of functioning; (c) duration that exceeds six months, (d) onset before age 45; and (e) the absence of a preexisting organic, substance use, or affective disorder. In general, schizophrenia has a chronic, episodically downhill course; however, with treatment, patients can be stabilized and become moderately independent and productive (see Appendix F).

There is no known single cause of schizophrenia. It does appear, however, that genetic factors produce a predisposition to it, with environmental factors contributing to different degrees in different individuals. Research indicates that schizophrenia runs in families. For example, the child of a schizophrenic parent has about a 10 % chance of developing schizophrenia, compared to a 1 % chance in the general population. When one of a pair of monozygotic (identical) twins, evidences schizophrenia only 50 % of the other twin also develops it, which indicates it is not entirely a genetic disorder (Suddath, Christison, Torrey, Casanova, & Weinberger, 1990). Most scientists agree that a

vulnerability or predisposition to the disorder is inherited, given a certain set of factors, this genetic predisposition can lead to schizophrenia. The National Institute of Mental Health in 1990 stated:

Just as each individual's personality is the result of an interplay of cultural, psychological, biological, and genetic factors, a disorganization of the personality, as in schizophrenia, may result from an interplay of many factors. Scientist do not agree on a particular formula that is necessary to produce the disorder. No specific gene has yet been found; no biochemical defect has been proven responsible; and no specific stressful event seems sufficient, by itself, to produce schizophrenia. (p.6)

In the pursuit for the cause of schizophrenia an imaging technique called Positron Emitting Tomography (PET) was developed. It allows for the examination of both the function and the structure of the living brain. Some PET studies have found in schizophrenia a decreased activity in the frontal and temporal lobes relative to other areas, and increased or decreased basal ganglia activity (Buchsbaum, 1990; Farkas, Wolf, Jaeger, Brodie, Chrisman & Fowler, 1984).

Treatment for schizophrenia includes medications, psychiatric or psychosocial rehabilitation; individual, group, and family therapy; self help groups; residential care; and transitional care. Other treatments such as psychosurgery (lobotomy), hemodialysis, and vitamin therapy have been used rarely, and their efficacy is considered minimal or unproven. The goal of treatment for schizophrenic patients is not to cure, but to improve quality of life, minimize symptoms, prevent suicide, avert relapses, enhance self-esteem, improve social and occupational functioning, and reduce the pain of the patient's relatives (Maxmen, & Ward, 1995). The relevant literature examined for this study was psychiatric (psychosocial) rehabilitation, day treatment and psychotropic medications as treatments for schizophrenia.

Day treatment

In the late fifties and early sixties the deinstitutionalization movement of the

mentally ill began with legislation establishing community-based treatment programs. A new concept began that people with major mental illness should be treated in the community in as normal a manner as possible (Anthony & Liberman, 1994). Accordingly, the National Institute of Mental Health developed the Community Support Program in 1977 (Hughs, 1994). A community support system is defined as “an organized network of caring and responsible people committed to assisting people with long term mental illness to meet their needs and develop their potential without being unnecessarily isolated or excluded from the community” (p.13). The services identified to meet these needs included treatment, rehabilitation, housing, vocational rehabilitation, case management, income supports, crisis response, health and dental care, peer support, and family and community support. Community mental health centers developed throughout the United States to provide these services in a framework called day treatment or partial care.

Day treatment became an intermediate between inpatient or residential care on one hand, and outpatient care on the other (Sunshine et al., 1992). Day treatment involves a structured day of activities and a system to handle client’s cycle of regular decompensation, re-hospitalization, residences at a half way house, and return to day treatment. The primary goal is stabilization and as much integration with the community as possible between these cycles. Unfortunately, community mental health centers have failed to provide the comprehensive services needed to bring about this stabilization (Braun, Kochansky, Shapiro, Greenburg, Gudeman, Johnson & Shore, 1981). These comprehensive services were either not a high priority for the centers, or their staff were ill-equipped to work with chronic psychotics (Liberman, King, & DeRisi 1976). The field of psychiatric rehabilitation grew because of the this challenge and the fact that traditional mental health services were only marginally effective in meeting these needs (Hughs, Woods, Brown & Spaniol, 1994).

Schizophrenia and Psychiatric Rehabilitation

Psychiatric rehabilitation or “psychosocial rehabilitation” (the terms will be used interchangeably) is the systematic utilization of a combination of specific modalities to assist in the community rehabilitation of persons with psychiatric disabilities (Rutman, 1984). The goal of these programs is to restore the person’s ability for independent living, socialization, and more effective life management. If rehabilitation works, the number and length of hospitalizations decreases, while client quality of life, level of functioning and employability increases. At the same time, psychiatric rehabilitation is among the least expensive of all the mental health services available (Hughes et al., 1994). Despite very real challenges created by psychiatric disability, and related stigma and prejudice, the goal of psychosocial rehabilitation is to collaborate with clients in the achievement of optimal life adjustment (Grob, 1983).

The following definition of the goals of psychiatric rehabilitation is provided by the Statement on Psychological Rehabilitation jointly produced by the World Health Organization (WHO) and the World Association for Psychological Rehabilitation (Saraceno, 1997):

- 1) Reducing symptomatology through appropriate pharmacotherapy, psychological treatment, and psychological interventions;
- 2) Reducing iatrogeny, by diminishing and eliminating, whenever possible, the adverse physical and behavioral consequences of the above interventions, as well as-and in particular- of prolonged institutionalization;
- 3) Improving social competence by enhancing individuals’ social skills, psychological coping, and occupational functioning;
- 4) Reducing discrimination and stigma;
- 5) Supporting families with a member who has a mental illness;
- 6) Creating and maintaining a long-term system of social support, covering at least basic needs related to housing, employment, social networking, and leisure;
- and 7) Empowering people with mental illness by enhancing their and their caregiver’s autonomy, self-sufficiency and self-advocacy capabilities. (p.14)

Psychosocial rehabilitation, thus, is not just a set of specific techniques, but an innovative approach and a comprehensive strategy for restoring the full citizenship of the

person with a mental illness (Saraceno, 1995).

In the last twenty years, psychiatric rehabilitation has grown from a few programs to being a major part of the mental health service system (Hughes et al., 1994). A survey completed by the International Association of Psychosocial Rehabilitation Services in 1989 identified over 1300 programs that call themselves psychosocial rehabilitation programs (IAPSRS, 1989). This research will only examine the vocational rehabilitation services provided by traditional day treatment and the clubhouse model of rehabilitation.

An Introduction to Psychiatric Rehabilitation by the International Association of Psychosocial Rehabilitation Services (Hughes, 1994) clarifies the role of work in psychiatric rehabilitation:

While the activities used to learn and practice new coping strategies may appear to be vocational or educational activities, it should be clear that the work or education is not the goal of such activities any more than learning to swim is the goal in hydrotherapy of a physical injury. For example, a young woman with schizophrenia may participate in the food unit preparing lunch. The effect of the mental illness is evident in her slow movement and disinterest in the activities around her (apathy), in her withdrawal from interactions with others (isolation and withdrawal), and in the difficulty she has understanding and communicating with others (cognitive deficits). The intent of rehabilitation is not to teach her to cook or to find a job in a restaurant. Rather she is learning to follow directions, to ask for clarification when she does not understand, to complete tasks, to relate to others appropriately, to control bizarre behavior, etc. Most importantly, she is learning to manage the symptoms of her illness in a normal setting. Such activities also raise self esteem, combat hopelessness, and provide a testing ground for new coping skills in a supportive and caring environment. (p.12)

It is the opinion of many professionals that vocational rehabilitation services, in concert with other psychiatric rehabilitation programs and services, provides the most effective treatment for persons with a major mental illness (Rutman, 1994: Hughes, 1994). It has to be considered an important component of a comprehensive community-based mental health strategy (Saraceno, 1995). Blankertz and Robinson (1996) found that over

a relatively short period of time, targeted vocational programs could help clients develop skills and attitudes necessary to attain employment or entry into the vocational rehabilitation system. In a replicated study, Drake, Becker, Biesanz, Wyzik, and Torrey (1996) looked at community mental health centers that converted their rehabilitative day treatment programs to supported employment programs. Because of the conversion the rate of competitive employment increased.

Historically, vocational rehabilitation for persons with a major mental illness was not considered the mission of either the community mental health centers or rehabilitation centers (Bond, 1992). However, during the 70s and 80s, psychosocial rehabilitation centers, such as Fountain House in New York (Malamud & McCroy, 1988), Thresholds in Chicago (Dincin, 1975), Horizon House in Philadelphia (Cnaan, Blankirtz, Messinger & Gardner, Jr., 1988), and The Club in New Jersey (Lehrer, et al., 1977), developed transitional employment programs that existed within pervasively non-vocational mental health systems. Today, interest in inter-agency collaboration between mental health centers and vocational rehabilitation programs is greater than ever before (Weinstock & Barker, 1995).

In 1978, the Federal Rehabilitation Administration and the National Institute of Mental Health entered into a cooperative agreement to improve services to the chronically mentally ill (Stratoudakis, 1986). This resulted in greater cooperation between state agencies for mental health and vocational rehabilitation. Accordingly, in 1990, Colorado implemented statewide cooperative agreements for the vocational rehabilitation of persons with major mental illness. The Rehabilitation Act of 1973 was amended in 1986 to authorize grants to states to develop “supported employment” for “individuals with severe handicaps for whom competitive employment has not traditionally occurred, or individuals for whom competitive employment has been interrupted or intermittent as a

result of severe disability, and who, because of their handicap, need on-going support services to perform such work” (Rehab Brief, 1987). This and related legislation has resulted in demonstration projects in 27 states including Colorado, beginning in 1988.

Vocational rehabilitation has become increasingly important as one of the array of services available for persons with schizophrenia. One reason for this is that rehabilitation approaches address the wishes and needs of mental health patients and their families for assistance that offers measurable and concrete improvements in patients’ lives (Cook, & Pickett, 1995). Another reason lies in the research supporting the effectiveness of these approaches on recidivism, employment, independent living, and socialization (Attkisson, Cook & Karno, 1992). Work not only provides financial remuneration, but is a normalizing experience allowing individuals to participate in society. It also promotes self-esteem and quality of life (Lehman, 1995). Furthermore, most persons with major mental illnesses identify paid employment as one of their goals (Rogers, Walsh, Massotta, & Danely 1991). Bell, Lysaker, and Milstein (1996) concluded that pay increases work activity, that work activity is associated with clinical improvement, and that pay appears to reduce emotional discomfort. These studies suggest that participation in supported employment programs can boost participants’ wages and decrease the use of alternative services. Therefore, supported employment programs appear to be cost effective when compared to traditional day care programs (Rogers, 1997).

The many different types of vocational rehabilitation are classified as follows: a) hospital based programs; b) sheltered work; c) assertive case management; d) psychosocial rehabilitation including prevocational training, transitional employment, and volunteer placements; e) supported employment; and f) counseling and education (Bond & Boyer, 1988). Numbers 4, 5 and 6 of the above are primary components of the clubhouse model, which is an active, independent variable or treatment in this study.

Supported employment is increasingly being offered as a vocational services option

to meet the unique needs of employees with psychiatric disability (MacDonald-Wilson, Revel & Nguyen, 1997). Supported employment has its origins in other psychosocial rehabilitation agencies such as Fountain House in New York. The model was developed to assist those persons who have been excluded from traditional rehabilitation services because of the severity of their disability and who require ongoing support to maintain employment (Federal Register, 1987). Because individuals with psychiatric disabilities have the least probability of vocational success, supported employment offers a unique opportunity to improve these results (Hirsch, 1989). Supported employment represents a paradigm shift in vocational thinking, by advocating the placement of clients with minimal prevocational training in community employment with the provision for time-unlimited support (Bond, 1992).

Schizophrenia and Psychotropic Medications

A brain chemistry imbalance has long been suspected as the main cause of schizophrenia. Most of the research in this area examines what part neurotransmitters play in schizophrenia (Cooper, 1991). Other researchers have looked at an excess or lack of the chemical brain substance dopamine (Creese, Burt, & Snyder, 1976; Davis, Kahn, Ko & Davidson, 1991). Schizophrenia is affected predominately by the brain's limbic system. The limbic system acts as a gate for incoming stimuli concerning emotion and perception. Because of this bio chemical connection, antipsychotic medications were discovered and began to be administered in the 1950s. Prior to the discovery of the first antipsychotic drug, barbiturates or morphine were used to control psychosis (Van Hasselt & Hersen, 1994). Chlorpromazine (thorazine) was the first of many antipsychotic medications introduced during the 1950s. The drug led to significant improvement in the functioning of people with serious mental illness. These first antipsychotic medications were so effective in many cases that a massive movement to deinstitutionalize patients came about.

Today, most patients with schizophrenia must regularly take maintenance

medication to keep their illness under control (see Appendix D). Fawcett (1996) described this “revolution” as follows:

Schizophrenia-cancer of the mind-dementia praecox-lifetime in the state hospital. Then in the middle 1950s-Thorazine. When more than half a million state hospital residents were increasing at 10% annually, Suddenly patients were being discharged, and the population began decreasing at 10% annually. A revolution was underway in psychiatry. Antidepressants were discovered. Psychobiology became a new paradigm. Then community psychiatry became the new direction. (p.282)

These medications have greatly improved the outlook for individual patients by reducing their psychotic symptoms and by allowing them to function more effectively and appropriately. Evidence of efficacy is overwhelming for the reduction of positive symptoms, but quite limited for other outcomes (Dixon, Lehman, & Levine, 1995). These medications represent the best treatment now available, but they do not “cure” schizophrenia or ensure that there will be no further psychotic episodes. For some patients they can be very effective in treating symptoms such as hallucinations and delusions. However, these medications can also result in a variety of short term side-effects such as drowsiness, as well as long term side effects such as tardive dyskinesia. The risk-benefit issue with any of these treatments is, and should be, a major consideration in choosing medication type and dosage.

Antipsychotic medications have proven a valuable tool in relieving psychotic symptoms in schizophrenia, but have not consistently relieved all the symptoms of the disorder. Even when patients are relatively free of symptoms, many still have extraordinary difficulty establishing and maintaining relationships with others. Moreover, because they frequently become ill during the critical career-forming or vocational learning years of life (ages 18 to 35), they are less likely to complete training required for skilled work. Consequently, many schizophrenic patients not only suffer thinking and emotional difficulties, but lack social and work skills as well.

Clozapine

Much progress has been made in the treatment of schizophrenia through traditional medications. However, many still do not respond to these treatments. Even with the best treatments, programs, and therapies available, approximately 30 % of schizophrenic patients do not see improvement (Higgins, 1995). Clozapine has been especially effective in treating people with schizophrenia who have not responded well to traditional medications (Andreasen, Flaum, Swayze, Tyrrell, & Arndt, 1990; Pantelis, & Barnes, 1996; Van Hasselt & Hersen, 1994). Clozapine or Clozaril (another brand name) is considered by many mental health professionals as the first major advance in the pharmacological treatment of schizophrenia since the introduction of antipsychotics in the 1950s (Borison, 1995; Buchanan, 1995). Clozapine is the only antipsychotic drug that has been shown to be effective in neuroleptic-resistant schizophrenia (Kane, Honigfeld, Singer, Meltzer, & Clozaril Collaborative Study Group, 1988). In addition to suppressing hallucinations and delusions, it may also ameliorate negative symptoms such as apathy, ambivalence, and social withdrawal (Andreasen, et al., 1990).

Clozapine has been found to be superior to traditional antipsychotic medications such as thiorazine in the treatment of schizophrenia. The first study to establish the efficacy of clozapine was that of Kane et al. (1988). This study involved 300 neuroleptic-resistant schizophrenic patients who were randomly assigned to and treated with clozapine or thiorazine for six weeks. Thirty percent of the clozapine-treated patients responded within six weeks, as opposed to 3 % of the thiorazine patients. Honigfeld and Patin (1989) used multiple regression to identify the predictors of outcome in the clozapine-treated group. Patients who were the paranoid type and patients who had a *greater* number of previous hospitalizations responded better to clozapine. Pickar, Owen, Litman, Konicki, Gutierrez, and Rapaport (1992) found that 38 % of chronic schizophrenic inpatients had a greater response to clozapine in comparison to fluphenazine

in 21 neuroleptic-resistant patients.

Lieberman, Safferman, and Pollack (1994) studied predictors of response to clozapine in 94 schizophrenic patients. They reported that neuroleptic intolerance, not accompanied by neuroleptic resistance, is a predictor of better response. Combining clozapine and a model for reintegration such as MERVS (medical, educational, residential, vocational, and social aspects of recovery) can be very effective in the treatment of the mentally ill (Littrell, 1995). These studies and others consistently show the efficacy of clozapine over standard medications; however, no absolute definitive predictors of response have been determined (Melzer, 1996).

The uniqueness of clozapine lies in its effectiveness in treating the nearly 35% of people with schizophrenia who have not responded to conventional therapies (Kane, et al., 1989; Naber, Leppig, Grohmann, & Hippus, 1989). At least one study has concluded that clozapine is much more effective than conventional treatments in helping patients move from hospitals to community based settings (Yesavage & Honigfield, 1992). Other studies show that the combination of clozapine and treatment programming have resulted in reductions in rehospitalizations, increased independent living, and increased employment (Melzer, Burnett, Bastani, & Ramirez, 1990; Lindstrom, 1988). In addition to a reduction in rates of hospitalizations, Melzer (1995) reported a decrease in suicide for patients using clozapine. After 12 months of clozapine treatment, patients' re-hospitalization rates were reduced by 83 %, and clozapine had a significant positive effect upon the vocational rehabilitation of people who did not respond to standard antipsychotic medications (Melzer, 1992). Miller, Perry, Cadoret, and Andreasen (1994) found that negative symptoms, psychotic symptoms, and disorganization all improved significantly with clozapine in previously treatment-refractory schizophrenics.

Clozapine does not result in many of the side effects, such as restlessness, tremors, and muscular contractions, that are associated with standard antipsychotics (Marder &

Van Putten, 1988; Umbricht, & Kane, 1996). In addition, clozapine does not result in tardive dyskinesia, a potentially irreversible abnormal movement disorder associated with standard antipsychotic use (Naber, Leppig, Grohmann, & Hippus, 1989). Clozapine, however, has a one to two percent incidence of a potentially lethal side effect known as agranulocytosis (Sandoz Pharmaceuticals, 1991). Since 1990, seven patients have died after developing agranulocytosis (Boodman, 1993). Agranulocytosis is reversible if detected early; therefore, weekly monitoring of the patients white blood cell count is a requirement of its use. Clozapine is prescribed only with a strict protocol designed to detect aganulocytosis early (Baldessarini & Frankenburg, 1991). This weekly monitoring of the patient's blood cells is a major cause of its relatively high cost. Clozapine and the required monitoring system for each patient drives the cost of treatment to approximately \$9,000 a year.

Because of this potentially lethal side effect, the novelty of the medication in the US, and its high cost, patients could not automatically qualify to receive it. Clozapine came with the requirement that patients must have tried and failed at two other medications before they qualified for it. This requirement could contaminate the expected results. This possibility is discussed in more detail in in chapter five.

It is estimated that 250,000 to 750,000 people in the United States could benefit from clozapine treatment (Reid, Pham, & Rago, 1993). As of June 1994, approximately 50,000 U.S. patients were being treated with clozapine (Higgins, 1995). If these estimates are correct, then 200,000 to 700,000 patients who might benefit from it are not receiving clozapine . In 1996, the Connecticut Department of Mental Health and Addiction Services (CDNHAS) conducted a study of its entire state resident population to determine eligibility for clozapine treatment. Preliminary findings from a randomized trial of clozapine verses traditional drugs indicate that discharge rates from hospitals did not differ. However, once discharged, patients assigned to clozapine were

less likely to be readmitted (Essock et al., 1996). Essock concluded that:

Generalizing from the Connecticut experience, State governments will have to invest approximately \$140 million nationwide to give all eligible patients hospitalized on a given day 1 year's access to clozapine. Although improvements in symptomology, quality of life, and eventual cost savings may occur, States have an uncertain fiscal incentive to prime this putative pump, since much of the potential savings may be realized by payers other than the States, much less by State Departments of Mental Health. (pp.15)

This underuse of clozapine has several possible explanations. First, the financial and medical coverage may put it out of reach. Psychiatric hospitals, community mental health centers, and clinics may not be able to fund everyone who could benefit from clozapine treatment, and not all hospitals, clinics and centers are certified for Medicaid and Medicare reimbursement (McFarland, 1992). Second, after purchasing clozapine for uninsured patients, they may improve to the point of discharge into the community, where they continue to need services through the mental health system in addition to the cost of the medication. Third, there is often a longer therapeutic response time to clozapine, which translates into more money and fewer dollars for treatment of new clients (Eichelman & Hartwig, 1990). Fourth, the cost effectiveness of clozapine is still an issue of the debate (Frank, 1991; Goldman, 1991; Revicki, Luce, Weschler, Brown, & Adler, 1990).

The economically driven ethical dilemma will continue until the cost of clozapine decreases significantly, or budgets and health insurance programs expand to meet the needs of patients with schizophrenia. Clearly, clozapine offers new hope to many, but it is not available to all who might benefit from its use (Higgins, 1995).

Clubhouse Model

In most traditional day treatment models of rehabilitation, work is not regarded as a useful treatment tool. Instead, much time is spent in group therapy, occupational therapies heavily dependent upon arts and crafts with little practical value, and “skills

training” for situations in which patients may or may not find themselves (Jackson, 1992).

In 1976, the Special and Experimental Branch of the National Institute of Mental Health awarded a special grant that enabled the Fountain House to inaugurate a national training program. In the following years, hundreds of people were trained at Fountain House, and many clubhouses were developed (Propst, 1992). In 1985, a group of people in Massachusetts began promoting the clubhouse model for its citizens with major mental illness. In 1986, the Massachusetts legislature funded a feasibility study and with favorable results they funded two clubhouses the following year. This movement eventually resulted in ten million dollars of funding for clubhouse programs in Massachusetts patterned after Fountain House (Dudeck, & Stein 1992). Dudeck and Stein concluded that “this commitment further meant that the old way of doing business on many fronts had to cease (pp 144).” The directors and staff workers had to believe that people who have long term mental illness were fully capable of holding down real jobs within the labor market, living in real homes and apartments, and functioning as self-determining citizens in the community when provided with flexible support.

Over the years, clubhouses across the country have developed and coalesced around a set of national standards outlining what is required of quality clubhouses and presenting a set of principles that guarantee some consistency in programming (Dudek & Stein, 1992). The Standards for Clubhouse Programs were promulgated in December, 1990, with the understanding that they should be perceived as a living document and would therefore be reviewed every 2 years in conjunction with the International Seminar (Propst, 1992) (see Appendix C).

The clubhouse is an excellent method of empowering a large group of people with psychiatric disabilities, while providing a solid base of operations for its members to meet their basic needs including job, home, food, clothing, financial assistance, an education of their choice, and a network of friends (Dudek & Stein, 1992). A 1984 telephone survey

found that 119 agencies with temporary employment programs (TEP) reported that 609 employers were providing 1,479 positions with cumulative annual wages of \$5,511,649 (Fountain House, 1985). Wilkinson (1992) examined the hospitalization rates and length of stay of psychiatric patients who participated in a clubhouse in South Carolina. Wilkinson's research concluded that active participation in New Day Clubhouse, a Fountain House model rehabilitation center, significantly reduced both the number of psychiatric hospitalizations and length of stay during hospitalizations. Patients were hospitalized almost five times as many days before than after participation, and had half as many admissions after membership in the clubhouse (figure 1 & 2).

In 1996, the International Center for Clubhouse Development at Fountain House, Inc. conducted a survey of clubhouses in the United States, with 222 respondents (77%). Three of the findings are significant to this study. First, the average annual cost per member to provide clubhouse rehabilitation was \$3,559 per year. Second, nearly all (98%) of the clubhouses reported providing a five-day work week for members. Finally, clubhouses in the survey contracted with 1000 different businesses to provide members with work, and facilitated the earnings of approximately \$4.3 million (Macias, Jackson, Schroeder, & Wang, 1997).

The clubhouse model, pioneered by Fountain House in New York, looks at work in an entirely different way than previous treatment models. "Work must underlie, pervade, and inform all the activities that make up the lifeblood of the clubhouse" (Beard, Propst, & Malamud, 1982). Work appears to have an important positive impact on the course of serious mental illness (Warner, 1994), is the central ingredient in the clubhouse model of psychiatric rehabilitation, and has been the foundation on which the model has been based (Waters, 1992).

The creation of Fountain House in New York City in the late 1940's marks the formal birth of clubhouses specifically designed to serve individuals with psychiatric

disabilities (Besancon & Zipple, 1995). The Executive Director of Fountain House, John H. Beard, states: "Fountain house is an intentional community designed to create a restorative environment within which individuals who are socially and vocationally disabled by mental illness can be helped to achieve or regain the confidence and skills necessary to lead vocationally productive and socially satisfying lives" (pp 47) (Beard, et al., 1982). The uniqueness of the clubhouse model is its emphasis upon personal productivity and member involvement, the opportunities available for skills building and work, and the sense of safety created within the clubhouse environment to encourage member contribution and success (Moxley, 1997). The model conveys four "messages" to each member or potential member (Beard et al., 1982):

1) Fountain House is a club and belongs to those who participate in it and who make it come alive. Participants are considered members. Membership, as opposed to patient or client status, is regarded as a far more enabling designation, creating a sense of belonging.

2) Members are made to feel that their presence is expected, anticipated and that their coming makes a difference to someone, indeed to everyone, in the program.

3) All program elements are constructed in such a way as to ensure that each member feels wanted as a contributor to the program. Each program is intentionally set up so that it will not work without the contribution of the members; indeed the entire program would collapse if members did not contribute. All tasks are shared by members and staff working side by side; staff never ask members to perform functions they themselves would not do.

4) Programs are designed to make every member feel needed. "Mutual support, mutual caring for the well-being, the success, and the celebration of every member is at the heart of the Fountain House concept and underlies everything that is done to ensure that every member feels needed in the program" (pp 47).

Mastboom (1992) describes the clubhouse daytime support as:

Fulfilling important needs of members for food, clothing, shelter, occupation, social contracts, structure, and social guidance. There is a coffee shop and a kitchen where at least once a day a meal is cooked for those present. Members typically participate in the routine upkeep of the house and the maintenance of a vegetable garden, both of which provide task oriented activities. If needed, clubhouses can also supply clothing; often, operating a shop for second-hand clothes as well as laundering and mending clothes are among the regular activities offered.

In addition to activities related to housekeeping and labor, initiatives are undertaken to improve members' education and to increase their sense of self-fulfillment. Whether supervised or not by regular staff or volunteers specifically recruited for this purpose, members teach each other reading, writing, arithmetic, word-processing, photography, a foreign language, or knitting. With sufficient interest for a new idea in principle, anything is possible in this atmosphere. (p. 11)

Fountain House lists ten specific components of a clubhouse: a) prevocational day program, b) transitional employment program (TEP), c) evening and weekend program, d) apartment program, e) reach out programs, f) thrift shop, g) clubhouse newspaper, h) clubhouse name, i) medication, psychiatric consultation, and health, j) evaluation and clubhouse accountability (Beard et al., 1982). Participation in these activities is a preparation for more independence and possibly paid employment in the community.

Clubhouses also have an employment rehabilitation program called Transitional Employment Program (TEP). It is based upon agreements made with employers that promise to provide specific jobs to members which provide for real job experience in a normal working environment with regular compensation. The clubhouse guarantees staffing in that position by a member or, if needed, a staff member. A member usually holds the position for six months, then another member takes his or her place. After many TEP's, a member may have enough experience, confidence and support to obtain a long term part time job in the community while continuing to gain support from the

clubhouse.

Although the clubhouse model is valued by clients, staff, clinicians, employers, and surrounding communities, Cella, Besancon, & Zipple (1997), concludes that “no one model can be everything to everybody”(pp 11). They surmise that a clubhouse can operate effectively within a system of integrated day services to meet a broader array of client needs without distracting from the clubhouse model. The clubhouse is entirely voluntary and is based on an entirely different treatment paradigm with which not all clients are ready to experiment.

Vocational Program Outcomes

When examining the relevant literature on the vocational outcomes of different vocational programs most of the work in the field can be summarized by Bond (1994). He summarized what researchers considered important and developed a comprehensive series of nine research-based propositions that have been and must be considered when examining the vocational outcomes of psychiatric rehabilitation programs:

1) Vocational programs can and do increase clients' performance in vocational activities including length of paid employment and average earnings (Beard, Pitt, Fisher, & Goertzel 1963; Dincin & Witheridge, 1982).

2) Sheltered settings (including hospitals, sheltered workshops, and prevocational training) are self-perpetuating and create an institutional dependency (Revell, Arnold, Taylor, & Zaitz-Blotner 1982).

3) Clients, especially those with prior work history, benefit from rapid entry into community employment (Bond & Dincin, 1986).

4) Assessment procedures (except for situational assessment) do not predict vocational outcomes.

5) Once clients terminate from a time-limited program, they tend to regress (Anthony, & Dion, 1986).

6) Length of client participation in vocational programs is correlated with vocational success (Barry, 1982; Bond & Boyer, 1988; Dincin & Kaberon, 1979).

7) Engagement and retention of clients in vocational programs are difficult.

8) The provider of a TEP or supported employment program is an important determinant of its success.

9) Clients participating in high expectation vocational programs are not at higher risk for re-hospitalization.

These studies and others provide information on supported employment and, more specifically, clubhouse programs and their overall effectiveness for treating the symptoms of mental illness and reducing hospitalizations (Wilkinson, 1992). Additionally, much has been written on the clubhouses' ability to promote the employment of members, particularly when clubhouse programs are provided in conjunction with other psychosocial services (Mastboom, 1992). Employment rates and wages earned by clubhouse members is also examined by many researchers (Bell, Lysaker, & Milsteine 1996; Bond, 1986). There are no specific studies, however, that compare vocational outcomes of clubhouse members with supported employment participants at a traditional day treatment program.

The literature available on the vocational outcomes of clients on clozapine is, similarly, widespread in regards to its efficacy as a treatment. Few studies, however, are available indicating how much more success with employment clients who take clozapine have. However, no studies could be found that compare vocational outcomes of clients taking clozapine and participating in clubhouse with those taking other medications or participating in clubhouse or engaging in neither.

Strengths and Deficiencies

The literature available regarding schizophrenia, psychiatric rehabilitation, and psychotropic medications, in general, is adequate but confusing. Dixon et al. (1995) declared that studies on the effectiveness of conventional antipsychotics were unclear and

scarce: “These deficits in the literature define a research agenda that must also be modified in concert with the emerging literature on new antipsychotic agents” (p. 567).

Furthermore, he concluded, the interactions of antipsychotic therapies with psychosocial rehabilitation interventions for improving nonsymptom outcomes should also be studied.

The research regarding the efficacy of specific treatments of clozapine and the clubhouse model are extensive, particularly since 1990. The research on vocational outcomes is discussed to different degrees for each independent variable and their interaction.

Vocational outcomes of people involved in day treatment or clubhouse is also quite extensive. However, vocational outcomes of those taking clozapine is much less available and non-existent for the combined effect of those taking clozapine and participating in a clubhouse setting.

An examination of the latest Dissertation Abstracts (1993-1994) resulted in four relevant studies. Borgeson (1993), of Kent State University examined approaches to reduce attrition of severely mentally disabled persons from vocational programs. Purlee, of Indiana University (1994), researched predictors of employment outcome (e.g., involvement in work adjustment, job seeking skills, sex, and age.) for persons with serious mental illness. Silvestri, of New York University (1994), investigated the relationship between work personality, social adjustment, demographic variables, psychiatric symptoms, and work status in 140 schizophrenic outpatients. Booth, of Virginia Commonwealth University (1994), researched three clubhouse programs, and reported lower hospital rates were associated with more program participation.

Summary

The available literature, although not conclusive, tends to agree with the hypothesis that the clubhouse model results in better vocational outcomes than traditional day treatment that has a supported employment component. Both have better vocational outcomes than traditional day treatment programs with no supported employment

services. The literature also supports the efficacy of clozapine in the treatment of schizophrenia, but does not support any conclusion specific to vocational outcomes. Finally, there is no research literature that examines the vocational outcomes of people with schizophrenia who take clozapine combined with participation in clubhouse, as compared to those taking other medications combined with participation in traditional day treatment programs.

Chapter Three: Method

Research approach

In recent years much progress has been made with new antipsychotic medications for the treatment of schizophrenia. Accordingly, these successes have resulted in more effective psychosocial treatment programs. In this study, I examined the efficacy of these new medications and new programs for schizophrenia in terms of employment outcomes. The archival data for this study was provided by the Colorado Division of Mental Health and the Colorado Rehabilitation Services (see Appendix E).

The research approach of this study is quasi-experimental because it made comparisons of two active independent variables or treatment types. The study is an ex post facto look at the participants in their pursuit of vocational rehabilitation; thus, they could not be randomly assigned to the groups. The dependent variable is the vocational outcome successful employment of each participant. Because no timed measurements are involved and because the subjects were divided into 4 different treatment groups, it is a between groups design of 2 variables with 2 levels each (i.e. a 2x2 factorial design). The combined effect of these treatment modalities was examined. All the subjects identified who meet the selection criteria were included; no random assignment of participants is involved.

Participants

The participants or population of this study are adults with schizophrenia that participated in a cooperative project between the Colorado Division of Mental Health and the Colorado Division of Vocational Rehabilitation in the years 1994-1995 and 1995-1996. After qualifying for services according to the terms of the project, each of these participants was enrolled in the program and offered supported employment

services. All the participants came from either a traditional day treatment program or a clubhouse treatment model and each either received traditional medications or clozapine. The number of participants in this time period was 150. Table 1 represents the demographic characteristics of these participants by gender, program, medication, and center location. Table 2 includes demographic data on all participants/diagnoses used in chapter five for recommendations for further research.

Table 1

Summary of Characteristics of Participants; Schizophrenia (N=150)

Characteristic	Number	Percent
Gender		
Male	93	68%
Female	43	32%
Program		
Day Treatment	57	42%
Clubhouse	79	58%
Neither	0	0%
Medication		
Other Medications	111	82%
Clozapine	25	18%
Center Location		
Denver Metro	75	55%
Urban	45	33%
Rural	16	12%

Note. The participant group had twice as many males as females, nearly equal numbers of clubhouse members as day treatment, four times as many participants taking other medications than clozapine. Most participants were from the Denver metro area.

Table 2

Summary of Characteristics of Participants; All Diagnoses (N=439)

Characteristic	Number	Percent
Diagnosis		
Schizophrenia	150	34.2%
Bipolar	100	22.8%
Depression	77	17.5%
Dystimia	18	4.1%
PTSD	10	2.3%
Borderline	5	1.1%
Panic Disorder	3	.7%
Schizoaffective	49	11.2%
Gender		
Male	226	51.5%
Female	199	45.3%
Program		
Day Treatment	146	33.3%
Clubhouse	230	52.4%
Neither	63	14.4%
Medication		
Other Medications	409	93.2%
Clozapine	28	6.4%
Center Location		
Denver Metro	246	56%
Urban	148	33.7%
Rural	45	10.3%
Employment (status 26)		
Yes	219	50%
No	220	50%

Note. The majority had schizophrenia and bipolar disorder, had equal numbers of males and females, 19% more participants in clubhouse than day treatment, and were from the Denver metro area.

Settings

Individual mental health centers and the Colorado Division of Mental Health retained data on who received vocational services through the Colorado Rehabilitation

Services, and whether they were in a traditional day treatment program or clubhouse, and whether or not they received clozapine medication. Each center also retained data on who was successfully employed (status 26).

Typically all mental health centers have a facility to provide day treatment or partial care services and usually a “half-way house” facility nearby for clients going to and from a hospital. The centers with clubhouse programs had a separate facility for the clubhouse members. The clubhouse model calls for housing to be provided for members; however, none of the clubhouses provided housing at the time of this study. Therefore, all of the participants in this study lived independently or in a residential facility owned by the center and went to a clubhouse, a day treatment facility, or both for services and medication.

The participants of this study are located throughout Colorado, with approximately half residing in the Denver metro area and participating in one of the mental health centers located there. The remaining subjects resided throughout the state and participated in the other mental health centers. The data was coded into three categories for further analysis: Denver metropolitan; medium sized cities other than Denver metropolitan; and small cities/rural (See Table 3).

Table 3
Geographical Location of Mental Health Centers

Denver Metropolitan	Medium Sized Cities	Small Cities/Rural
Adams CMHC	Boulder CMHC	Midwest CMHC
Arapahoe CMHC	Centennial CMHC (Colo. Spgs..)	South West CMHC
Aurora CMHC	Spanish Peaks CMHC (Pueblo)	
Denver MH Corp.	Weld CMHC (Greeley)	
Jefferson CMHC		

Note. CMHC is Community Mental Health Center

Treatment

Four treatment types were examined, of which two are psychotropic drug categories and two are psycho-social rehabilitation models. The two medication categories are clozapine and the traditional medications that include as many as 12 different medications (see Appendix D). Because new medications such as clozapine have been so effective, they have allowed less restrictive and more dynamic psychosocial programs such as the clubhouse model to evolve. Independent living and a job in the community for persons with schizophrenia are becoming more the norm than the exception. The purpose of this study then, is to examine if these two treatment types; clozapine and clubhouse, are any more effective for vocational outcomes than traditional medications and programs.

Measures

The data required to conduct this study was made available from the archives of the Colorado Division of Mental Health and include the following (see Appendix E):

- 1) Total participants enrolled and year.
- 2) Independent variables with two levels:
 - a. Participants in day treatment receiving clozapine.
 - b. Participants in day treatment receiving other medications.
 - c. Participants in clubhouse receiving clozapine.
 - d. Participants in clubhouse receiving other medications.
- 3) Dependent variable with two levels:
 - a. Participants successfully employed (status 26).
 - b. Participants not successfully employed.
- 4) Secondary questions for further research
 - a. Demographic data such as gender, Center location, and years of study.

Internal validity was addressed by the following; first, all the participants in the designated time periods were included in the study, and therefore, the sample size/power is generally high. Second, the participants were essentially equivalent because they have the same diagnosis and they all desired vocational services. Third, most extraneous variables have been either controlled for in the beginning of the program (enrollment criteria), or were addressed statistically in the data analysis.

The degree of external validity or generalizability of this study is based on the clubhouses that meet the national criteria, the method/standards of diagnosing this illness, and the definition of employment outcomes being the same. Additionally, the conditions/environment in which these treatments were administered were similar throughout mental health centers in Colorado. Reliability was examined by comparing the data from the 2 years collected. The documents this data was drawn from were provided by the Colorado Division of Mental Health and individual community mental health centers.

Procedures

The procedure for conducting data collection involved four agencies/groups. First, I met with the Director of the Division of Mental Health to explain my objectives, to request suggestions and input, and to obtain permission to proceed (see Appendix H). Second, prepared and presented the necessary documents to my Advisory committee and the CSU Human Subjects Committee for review and approval (see Appendix I). After these conditions were met, the Division of Mental Health collected the required information from the 12 community mental health centers, coded it for confidentiality, and provided it to me for examination. Fourth, the data from the Denver Mental Health Corporation was not included initially for this study, but after receiving the appropriate clearances I obtained the data from the client charts at the appropriate Denver Mental Health Corporation office.

The data was tabulated and processed through a variety of SPSS procedures at the Colorado State University Statistical Laboratory. The final data was examined for its relationship to the hypothesis proposed and any secondary questions that might be relevant for future research.

Because the combined effect was not validated by this research, specific professionals in the field were contacted for input and discussion of the results. They included Tom Barrett, Director of the Colorado Division of Mental Health, Kim Komitor of the Colorado Rehabilitation Services, the Joint Supported Employment Contract Operations Committee (Colorado), mental health centers vocational coordinators, and the local vocational rehabilitation counselors. The feedback, insight, and analysis they provided is presented in chapter 5.

Design and Data Analysis

This research is patterned on a between group design, with 4 conditions or groups, in short, a 2X2 factorial design (see Table 4).

Table 4
Research Design

	Other Meds	Clozapine	
Day treatment	(Ss)	(Ss)	Mean
	mean	mean	
Clubhouse	(Ss)	(Ss)	Mean
	mean	mean	
	Mean	Mean	

Note. The values represent 2 levels of 2 treatments.

The combined effect between medication type and program type was examined (see Figure 3). A 2-factor analysis of variance was used.

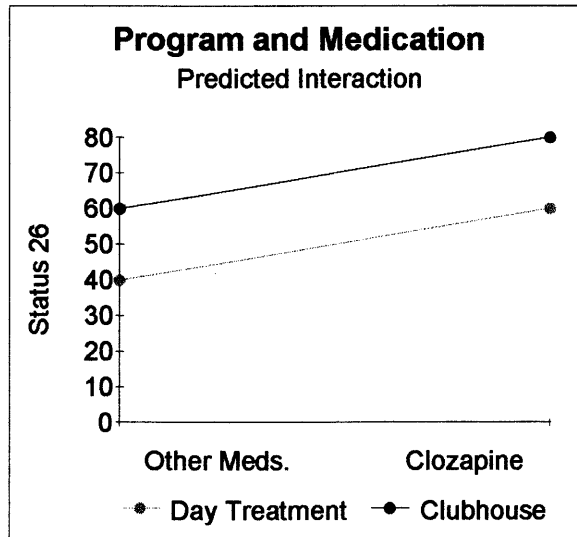


Figure 3. Predicted employment (status 26) for clubhouse and clozapine (%), and clubhouse only (%), and clozapine only (%). [Chi-square is/is not significant at .05 level]

Summary

This research is based on a quasi-experimental approach, with a 2 X 2 factorial design. It is an ex post facto examination of two active independent variables (treatments) and one dependent variable (vocational outcome). The subjects are adults with schizophrenia who were enrolled in a cooperative project between the Colorado Division of Mental Health and The Colorado Vocational Rehabilitation services from July, 1994 to July of 1996. The participants were clients of 12 community mental health centers throughout Colorado. Four treatment types were examined, of which two were psychotropic medications (clozapine and all other medications) and two were psychosocial rehabilitation programs (clubhouse and day treatment). The data collected included numbers of participants in each treatment and numbers of participants successfully employed. The procedure involved the collection and examination of archival data retained by the Colorado Division of Mental Health and twelve Colorado community mental health centers. Results were processed with SPSS software at the Colorado State

University Statistical Laboratory. The hypotheses that Clozapine medication is more effective than other medications, that clubhouse is more effective than day treatment, and that both clozapine and clubhouse together are more effective than either alone was examined by this research.

This study then, is designed to examine available data from the Colorado Division of Mental Health and the Colorado Rehabilitation Services on the supported employment outcomes of persons with schizophrenia during the program years 1994 to 1995 and 1995 to 1996. This study compared the effectiveness of two medication regimens and two different program types in regards to employment outcomes. The significant combined effect examined the hypothesis that the medication regimen clozapine in conjunction with the program clubhouse provided the best employment outcomes for persons with schizophrenia.

Chapter Four

Results of the Study

The results of this research will be presented in two sections. The first section will address the three major hypotheses; 1) The employment outcomes of the independent variable Clubhouse Treatment versus the independent variable Day Treatment, 2) The employment outcomes of the independent variable Clozapine Medication versus the independent variable Other Medications, 3) The employment outcomes of Clubhouse and Clozapine combined versus only Day Treatment, only Other Medications and Neither. The second section will examine the data collected that relates to four supplemental research questions for all diagnoses; clubhouse versus day treatment, gender, center location differences, and any significant differences between the first year of the study and the second year.

Section I

First Hypothesis: Persons with schizophrenia will have better employment outcomes when they participate in a clubhouse program than if they participate in a day treatment program.

Findings: The data for employment and program for persons with schizophrenia shows that participants in the clubhouse program were employed (status 26) 28.5% more than participants in day treatment program. The Chi-square of .00089 showed significance at the .05 level (see Figure 4 & Appendix G).

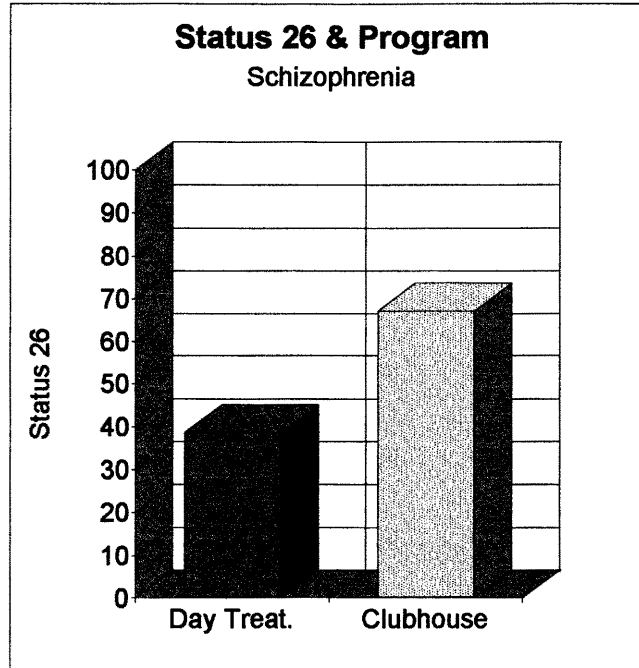


Figure 4. Employment (status 26) for day treatment 38.6% ($n=57$), and for clubhouse 67.1% ($n=82$) [with Chi-square significance of .00089]

Second Hypothesis: Persons with schizophrenia will have better employment outcomes when they take clozapine than when they take other medications.

Findings: The data for employment and medication for persons with schizophrenia shows that those participants who took clozapine were employed (status 26) 26.1% more often than participants who took other medications. The Chi-square of .01388 was significant at the .05 level (see figure 5 & Appendix G).

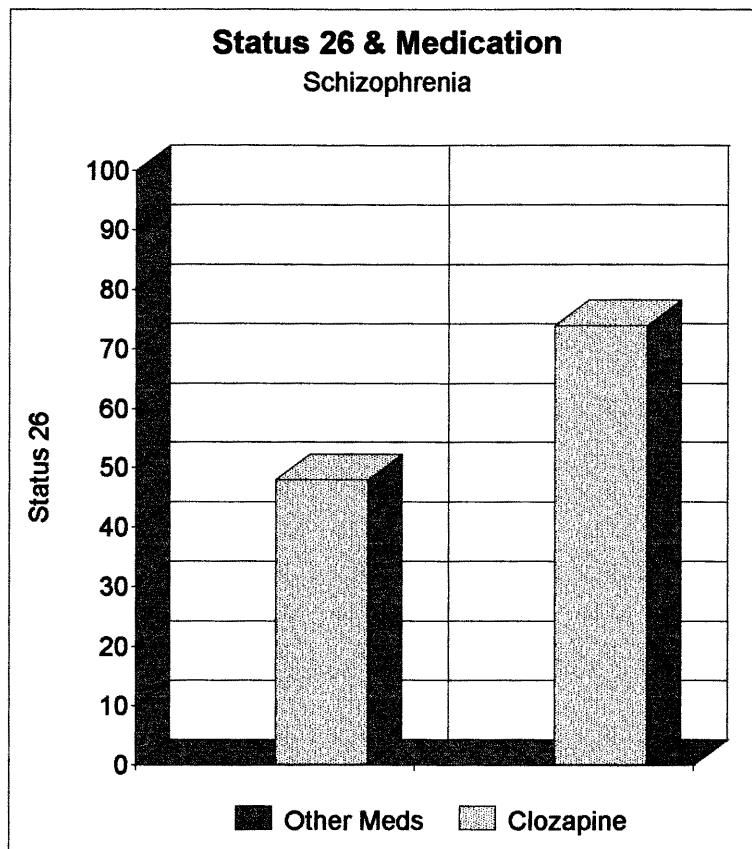


Figure 5. Employment (status 26) for clozapine 74% (n=27) and other medications 48% (n=123). [with Chi-square significance .01388]

Third Hypothesis: Persons with schizophrenia will have better employment outcomes when they participate in clubhouse and take clozapine than (a) when they only participate in clubhouse and take other medications, or (b) only take clozapine and have day treatment. There will be a combination effect.

Findings: The data for employment shows that there is no significant difference between participants in clubhouse taking clozapine (Both) and (a) participants in clubhouse only (79% versus 64%, Chi-square of .20893 significant at the .05 level) and (b) participants taking clozapine only (79% versus 83%, Chi-square of .815 not significant at the .05 level). However; (a) those in day treatment and taking clozapine are more likely to be employed than those who are in day treatment without clozapine (83% versus 33%, Chi-square of .01733 significant at the .05 level) and (b) those in clubhouse and not taking clozapine are more likely to be employed than those who are in day treatment and not taking clozapine (63.5% versus 33.3%, Chi-square of .001 significant at the .05 level). It also appears that the clubhouse with other medications (both) is better than day treatment with other medications (Neither) (78.9% versus 33.3%, Chi-square of .001 is significant at the .05 level). Thus it looks like either clozapine or clubhouse or Both increased employment possibilities over Neither (see Table 5, Figure 6 & Appendix G).

Table 5
Comparison of Four Treatment Effects

Comparison	Percentage	Chi-square significance
1)Both vs Clubhouse	79% vs 63%	(.208)
2) Both vs Clozapine	79% vs 83%	(.815)
3) Neither vs Clubhouse	33% vs 63%	(.001)
4) Neither vs Clozapine	33% vs 83%	(.017)
5) Both vs Neither	79% vs 33%	(.001)

Note. 1 & 2 are not significant at the .05 level. 3, 4 & 5 are significant at the .05 level.

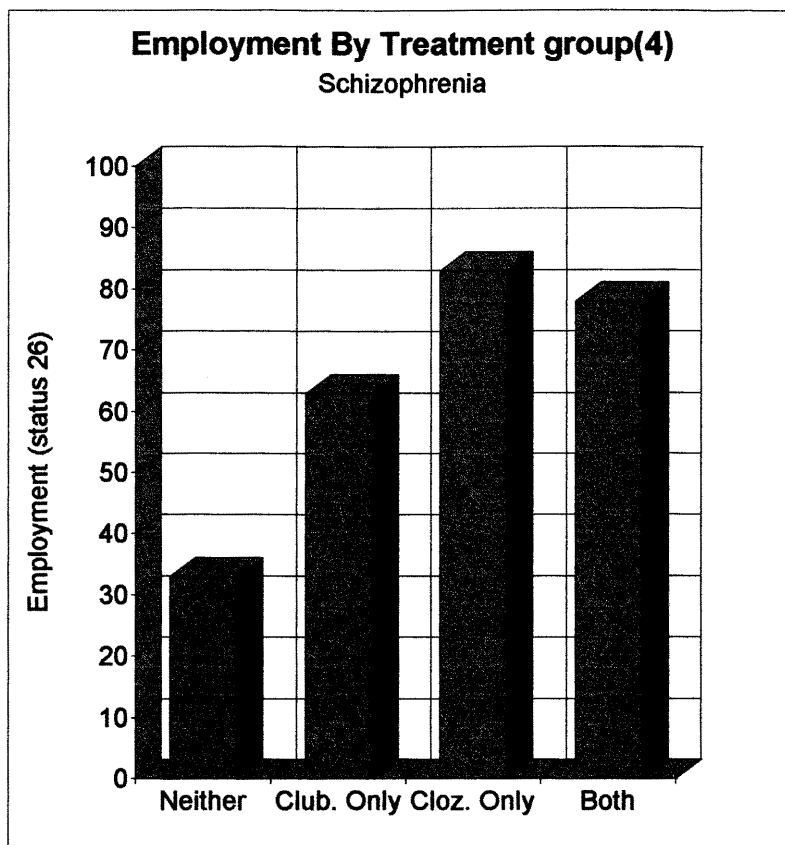


Figure 6-A Employment (status 26) for participants in clubhouse taking clozapine 78.9% ($n=19$) and clubhouse plus other medication 63.5% ($n=63$) [with Chi square significance .20893]; and clozapine only 83.3% ($n=25$) [with a Chi-square significance .815]; and clozapine only 83% ($n=6$) versus neither 33% ($n=51$); [with a Chi-square significance .01733] and clubhouse only 63.5% ($n=63$) versus neither ($n=5$); [with a Chi-square significance of .001] and both 78.9% ($n=19$) versus neither 33.3% ($n=51$); [with Chi-square significance .001)

Section II: Supplemental Analysis

Supplemental Data 1: Do persons with major mental illness receiving vocational rehabilitation services have better employment outcomes when they participate in a clubhouse than when they participate in a day treatment program?

Findings: The data on employment and program for all diagnoses shows that persons with major mental illness who participant in the clubhouse model have 16.9% better employment outcomes than participants in a day treatment program. The Chi square of .00137 is significant at the .05 level (see Figure 7 and Appendix G).

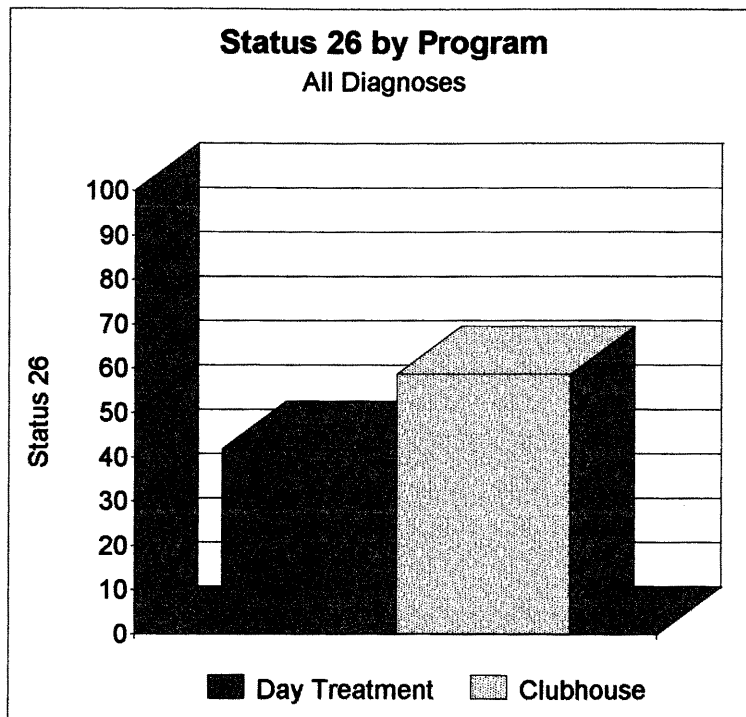


Figure 7. Employment (status 26) for day treatment 41.8% (n=146) and clubhouse 58.7% (n=230) [with a Chi-square significance of .00137].

Supplemental Data 2: Do women or men with major mental illness have better employment outcomes when participating in a day treatment and when participating in a clubhouse program?

Findings: The data for employment between gender for all diagnoses shows that males and females have equal employment outcomes when participating in either a clubhouse program (Chi square of .688 is not significant at the .05 level) or a day treatment program (Chi-square of .49367 is not significant at the .05 level) (see figure 8 and Appendix G).

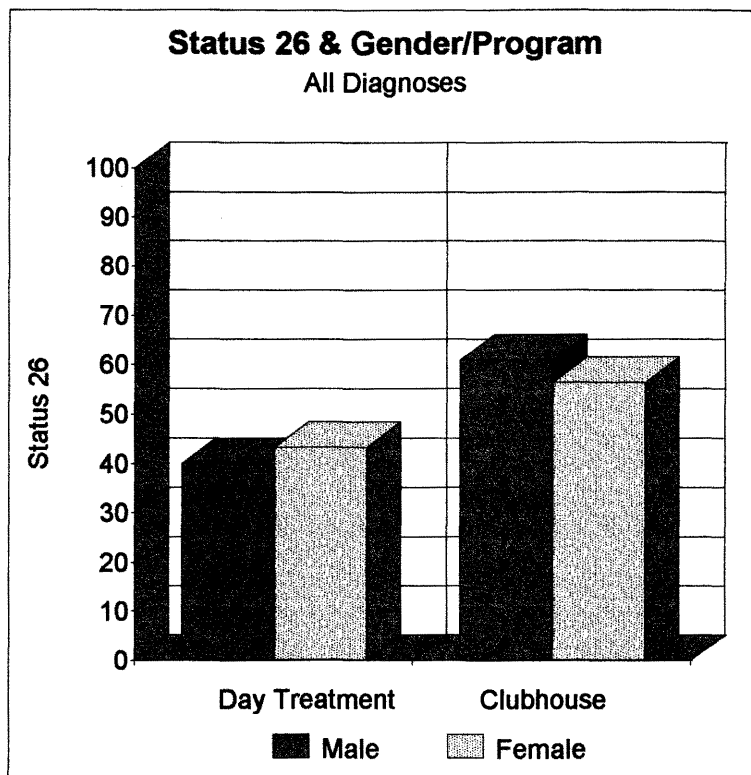


Figure 8. Employment (status 26) for males in day treatment 40% (n=85) and females in day treatment 43.3% (n=60) [with a chi-square significance .688] and employment for males in clubhouse 60.9% (n=110) and females in clubhouse 56.4% (n=110) [with a Chi-square significance .49367].

Supplemental Data 3: For clubhouses and day treatment programs separately, which geographical areas (Denver metro, Large cities other than Denver metro, and small cities/rural) have better vocational outcomes for persons with major mental illness?

Findings: No comparisons can be made for rural centers because of the small number of participants and a lack of any clubhouse programs. There are no employment outcome differences between day treatment programs for Denver and other urban programs (Chi-square of .24 is not significant at the .05 level). There are, however, significantly better employment outcomes in the metro Denver clubhouses than in the other urban clubhouses (Chi-square of .04 is significant at the .05 level (see figure 9 and Appendix G).

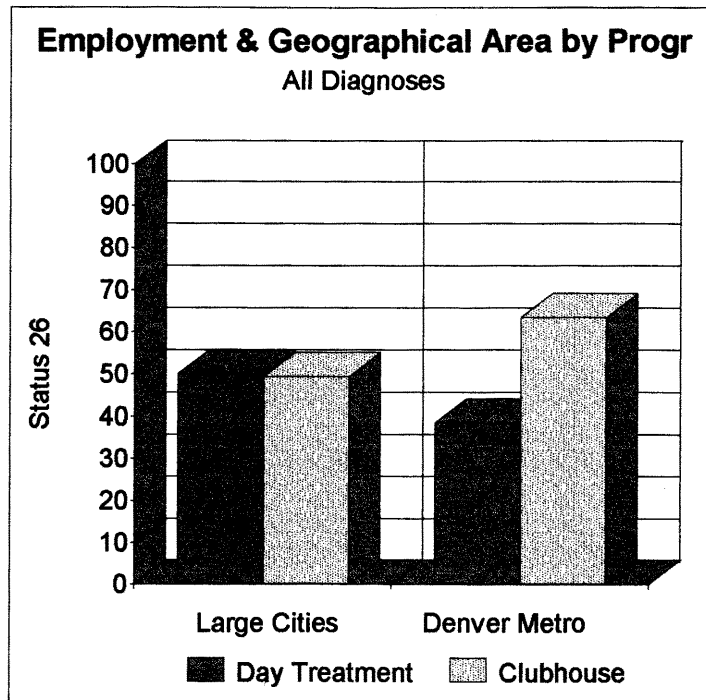


Figure 9. Employment (status 26) for rural centers by day treatment 38.5% (n=39) and clubhouse N/A% (n=0) [Chi-square significance N/A]. Metro Denver clubhouse versus other large city clubhouses [with a Chi-square significance .04]. Metro Denver day treatment programs versus other large city day treatment [with a Chi-square significance of .241].

Supplemental Data 4: Are there significant different employment rates for persons with mental illness between the study years 1994-1995 and 1995-1996?

Findings: The data for employment by year 1994-1995 and 1995-1996 for all diagnoses shows that clients had 11.4% more likelihood of having successful employment outcomes as defined by the Colorado Rehabilitation services in the first year of the study as compared to the second year (Chi-square of .01798 is significant at the .05 level).

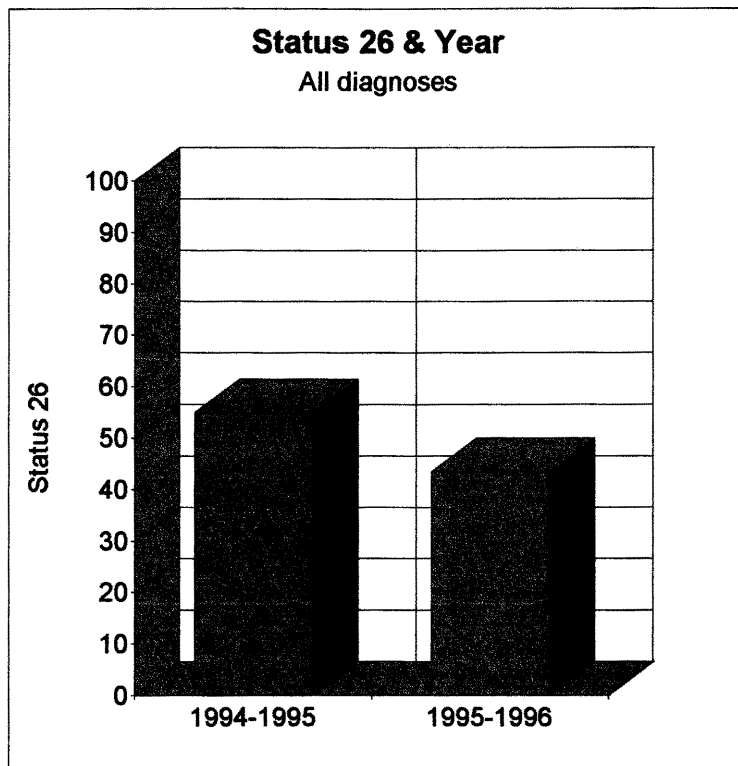


Figure 10. Employment (status 26) for year 1994 to 1995 at 54.9% (n=253) and 1995 to 1996 at 43.5% (n=184) [with Chi-square significance .01798].

Chapter Five

Summary, Conclusions, Implications and Recommendations

Summary

Historically, three events directly impacted this research. First, in 1988, the Colorado Division of Mental Health and the Colorado Rehabilitation Services established a cooperative agreement to fund and administer vocational programs in all the mental health centers in Colorado that serve adults with major mental illnesses. Second, in 1990 the United States food and drug administration approved clozapine as a treatment for schizophrenia. Third, the psychosocial rehabilitation model known as clubhouse expanded to the majority of the mental health centers in Colorado by 1996. After the expenditure of millions of federal and state dollars for clozapine and clubhouse programs, did adults with schizophrenia taking clozapine and participating in clubhouse have better vocational outcomes?

The purpose of this research was to analyze what vocational rehabilitation programs and treatment types have resulted in the best employment outcomes for persons with schizophrenia in Colorado. This study examined the relationship between four different treatments provided to 150 participants with schizophrenia and their resulting vocational outcomes. The manipulated variables were defined as two medication categories known as clozapine and all other medications (Appendix D), and two psycho-social programs known as clubhouse and day treatment. Any combined effect between these variables was also examined. The dependent variable is defined as status 26 (successful employment for a minimum of 60 days). Relationships between intervening variables for all diagnosis including program, gender, center location (Denver metro, large cities other than Denver metro, and small cities/rural), and differences in study years were

provided for future examination.

A study of treatment approaches for persons with schizophrenia with specific and documentable outcomes is important for three reasons. First, because schizophrenia is a debilitating illness that tortures its victims, their families, and the community they live in, any treatment that enhances their quality of life should be promoted. Thomas McGlashan (1986) points out that the average income of schizophrenics is lower than that for other major mental illnesses, that schizophrenia can be chronic and disabling, and that morbidity and mortality are significant. Second, millions of dollars have been spent on vocational programs for persons with schizophrenia in Colorado as well as in most other states without any specific results as to what works and what does not in terms of employment. On any given day, 600,000 people in the United States are in active treatment for schizophrenia, with an estimated cost to society of \$10-20 billion annually for hospitalization, social security disability benefits, welfare payments, and lost wages (Torrey, 1983). Future policy decisions and funding sources could be profoundly affected by this information. Third, nearly all persons in the United States with schizophrenia receive either Medicare or Medicaid, and with increasing national scrutiny of these programs, this information can be invaluable for determining which programs to expand and which to curtail.

This research can be useful for three reasons. First, it can help to understand and identify treatments for persons with schizophrenia that reduce symptoms and increase their quality of life. Second, it can help determine the results of 8 years of vocational services for persons with schizophrenia in Colorado. Third, this research can contribute relevant information to the national debate regarding social security benefits and vocational rehabilitation programming for persons with schizophrenia.

Hypothesis One

Equally significant is the research regarding the efficacy of the clubhouse movement and its positive effect upon vocational outcomes for persons with schizophrenia. The results of this research confirm these research findings for persons with schizophrenia (hypothesis one). Study participants with schizophrenia had 28.5% better vocational outcomes if they participated in clubhouse than day treatment program (67.1% versus 38.6%). These conclusions were expected by this researcher because of personal experience and the prevailing relevant research literature.

This result is particularly significant when consideration is given to the fact that all the clubhouses except Boulder were new during the 6/94 to 7/96 study time frame. Would the results be even more dramatic had these programs been seasoned and fine tuned over time before the subjects of this study became involved? Some of the clubhouses had applied for certification to Fountain House, but only Boulder had received accreditation in 1996. That five of the six clubhouses were implemented during the study period suggests the possibility that future results may be even more improved.

Hypothesis Two

A significant body of research has addressed the efficacy of clozapine in the reduction of negative symptoms of schizophrenia. Accordingly, the results of this research indicates that persons that take clozapine and seek vocational services have a significantly better chance for successful employment (hypothesis two). More participants who took clozapine than other medications (see Appendix D) were employed for sixty days or longer (26.1%). This result supports the literature on the overall effects of clozapine; increased affect, decreased hospitalizations, symptom reduction, and overall improved functioning. The result also supports the limited research literature regarding supported employment and vocational rehabilitation.

This result and the prevailing literature suggests that clozapine can be an effective treatment for schizophrenia in general, and more specifically for the vocational rehabilitation of persons with schizophrenia. It should be noted, however, that this result does not occur with clozapine by itself. The positive outcome is a result of the clozapine medication in conjunction with a psychosocial treatment plan involving therapy and case management. The vocational outcomes of persons with schizophrenia are significantly better for clients taking clozapine than for clients taking other medications .

Hypothesis Three

With no supporting research examining the employment efficacy of a person with schizophrenia taking clozapine and participating in a clubhouse program, this researcher's hypothesis that both treatments would result in better vocational outcomes than either alone was not demonstrated by this research. The result that persons with schizophrenia who participate in clubhouse *and* took clozapine did not have better vocational outcomes than those with either clubhouse or clozapine was not expected by this researcher. It was the assumption and the predicted effect that if clubhouse and clozapine were independently more effective in relation to the dependent variable (status 26), then the combination would be even more effective than either individually. The results concluded there was no significant difference between the combined treatments and the individual clubhouse/clozapine treatments. However, both clozapine and clubhouse are better than neither and either clubhouse, and, especially, clozapine is better than neither. Furthermore, there is no literature that relates specifically to this hypothesis and this conclusion.

The predicted combination effect was not validated by this research. Specific professionals in the field provide input to understand and discuss this result. They included Tom Barrett, Director of the Colorado Division of Mental Health, Kim Komitor of the Colorado Rehabilitation Services, the Colorado Joint Supported Employment Contract Operations Committee, individual mental health center vocational coordinators,

and local vocational rehabilitation counselors. All of these discussions led to three possible explanations for this result: a) The Sandoz Laboratories, requirement that to receive clozapine a patient must have been unsuccessful with two prior medication regimens before prescribing clozapine could have significantly affected this outcome; b) Weekly monitoring of patients blood for the potentially dangerous side effect agranulocytosis may have played some role in this hypothesis; c) The positive effects of the both treatments, being significantly higher than neither, could peak or reach a “point of diminishing returns” beyond which effects become smaller and smaller.

Because other medications also require regular monitoring by the center’s psychiatrist (although less often than clozapine), it was felt that the second reason cannot explain the resulting combined effect. However, it was felt that the first reason did in fact influence the combined effect of this study. Clients receiving clozapine were by definition more impaired to begin with than others with schizophrenia taking other medications. If clients were more impaired, then it is believed that clozapine brought them to the same level of functioning as those on other medications; the medication had more of an “equaling” effect rather than an “adding” effect. If both medication groups were equally disabled to begin with, then the clozapine/clubhouse group should have significantly better vocational outcomes than either group separately. It was felt by the professionals consulted that the third possible reason is a plausible explanation for the combined effect.

Supplemental Questions

In examining the additional four research questions involving all diagnoses, the literature supports the first conclusion that for all persons with mental illness there is a 16.9% better employment outcome when participating in a clubhouse as opposed to a day treatment program. Although the data herein for clubhouse participants with schizophrenia shows a higher employment rate of 28.5%, the results for all diagnoses and schizophrenia are both significant at the .05 level of significance. This study and the

relevant literature strongly suggests that any person with a major mental illness seeking vocational rehabilitation services could have better results participating in a clubhouse model than in a traditional day treatment program.

The second research question regarding gender for all diagnosis shows no differences in employment outcomes between men and women. Men and women in day treatment do the same regarding employment outcomes. Men and women in clubhouse also do the same regarding employment outcomes.

The biggest differences regarding geographical location of centers was between Denver metro programs and other large city programs. Denver metro clubhouse programs did significantly better than other large city clubhouse programs. Other large city day treatment programs did significantly better than Denver metro day treatment programs. This result is unclear because it may be a result of the skewing effect of the large numbers of clubhouse participants in Denver metro (four clubhouses) versus urban (one clubhouse).

The employment rate (status 26) was 11.4% higher for the study year 1994-1995 than 1995-1996. During the second year of this study, the federal government responded to fiscal tightening for vocational rehabilitation funds by initiating a protocol referred to as "order of selection". This directive essentially said that centers must serve the "most disabled" applicants first. Putting the "most disabled" clients through the rigorous procedures of applying for services, preparing for employment, job hunting, and keeping employed is a logical explanation for this decrease in employment rates the second year of the study.

Conclusions

Based upon the relevant literature and the results of this study the clubhouse model can and does result in improved vocational rehabilitation outcomes for person with schizophrenia in Colorado. Furthermore, these results regarding the clubhouse model are

true for all persons with major mental illness. The relatively new medication clozapine also can and does result in significantly improved vocational outcomes for persons with schizophrenia in Colorado. The combination of these two treatment types clubhouse and clozapine, however, do not significantly improve vocational rehabilitation outcomes for persons with schizophrenia, but neither has the lowest employment outcomes. Because clients receiving clozapine had to fail at two prior medication trials, future research could examine the issue that the disability level of persons qualifying for clozapine affected this unexpected result.

Implications for Practice

The results of this study strongly suggest that if a psychosocial goal for the treatment of mental illness is to reduce negative symptoms, enhance self esteem, improve quality of life, decrease hospitalizations, etc., through meaningful employment, then continued and expanded support for clubhouse programming should occur in Colorado. Additionally, if these same goals are desired for persons with schizophrenia then efforts both financially and administratively should be made so that more clients receive clozapine medication. The financial savings resulting from decreased hospitalizations, wages earned, and reduced dependence on government services and funds, as some research suggests, could justify the relatively high cost of clozapine. Successful employment for persons with schizophrenia not only enhances their quality of life, but it makes them taxpayers and reduces their dependence on tax dollars. Most important, the results of this study suggest that the money spent by the state of Colorado for vocational rehabilitation has been very positive and important in the treatment of persons with schizophrenia.

Recommendations for Further Research

This study has four possible recommendations for further research. First, it would be of use to test the possibility that the requirement of two unsuccessful medical trials

before clozapine could be prescribed effected the outcome of hypotheses three (significant combined effect). I would recommend that similar research be conducted with one of the five newer and similarly acting drugs. Risperidone, olanzapine, sertindole, seroquel, and ziprasidone are newer antipsychotic drugs for schizophrenia that act similarly to clozapine. They do not, however, require any unsuccessful trials before they are prescribed. Additionally, the efficacy of clozapine if no prior unsuccessful medication trials were required is an issue to be examined.

Second, I would examine whether hospitalization rates were affected by the participation in clubhouse program compared to hospitalization rates of vocational rehabilitation clients in day treatment. Hospital stays are the most expensive treatment option a center has, and the least desirable. When compared to day treatment, do persons with schizophrenia who participate in a clubhouse setting have fewer hospital admittance and fewer hospital days?

Third, what is the cost benefit between wages earned and taxes paid by clients compared to the cost of clubhouse and clozapine? If the total wages earned and taxes paid annually by clients in clubhouse or taking clozapine exceed the cost of the program, then program justification and enhancement could benefit.

Fourth, doing this research after the clubhouses had time to mature and possibly become accredited by Fountain House would change the possible effect the newness these programs had on this study. The results of a study after clubhouses have matured could be even more dramatic or be valuable for temporal comparisons.

Finally, research in general that enhances treatment and progaming for persons with schizophrenia should be encouraged and the results implemented when possible. The literature suggests that until preventions or cures become a reality, a combination of treatments such as clozapine and clubhouse, provide some relief for persons with schizophrenia.

References

- Allen, J. (1993). Long term outcome in schizophrenia. The Menninger Letter, 1, 6-12.
- Andreasen, N., Flaum, M., Swayze, Tyrrell, G., & Arndt, S. (1990). Positive and negative symptoms in schizophrenia. Archives of General Psychiatry, 47, 615-621.
- Anthony, W., & Dion, G. (1986). A review of psychiatric rehabilitation research. Washington, DC: National Rehabilitation Information Center.
- Anthony, W & Liberman, R. (1994). The practice of psychiatric rehabilitation: Historical, conceptual, and research base. In L. Spaniol et al. (Eds.) An Introduction to Psychiatric Rehabilitation. Columbia, MD: International Association of Psychosocial Rehabilitation Services. 18-20.
- Attkisson, C., Cook, J., & Karno, M. (1992). Clinical Services Research.
- Baldessarini, R. & Frankenburg, F. (1991). Review article, drug therapy: Clozapine-A novel antipsychotic agent. New England Journal of Medicine, 324, 746-754.
- Barry, P. (1982). Correlation study of a psychosocial rehabilitation program. Vocational Evaluation and Work Adjustment Bulletin, 15, 112-117.
- Beard, J., Propst, R., & Malamud, T. (1982). The fountain house model of rehabilitation. Psychosocial Rehabilitation Journal, V(1), 47-48.
- Beard, J. Pitt, R., Fisher, S. & Goertzel, V. (1963). Evaluating the effectiveness of a psychiatric rehabilitation program. American Journal of Orthopsychiatry, 33, 735-738.
- Bell, M., Lysaker, P., & Milstein, R. (1996). Clinical benefits for paid work activity in schizophrenia. Schizophrenia Bulletin, 22 (1), 51-67.
- Besancon, V. & Zipple, A. (1995). From day program to clubhouse: Practical strategies for supporting the transformation. Psychosocial Rehabilitation Journal, 18(3), 7.
- Blankertz, L. & Robinson, S. (1996). Adding a vocational focus to mental health rehabilitation. Psychiatric Rehabilitation Journal, 47 (11), 106-107.

- Bond, G. (1984). An economic analysis of psychosocial rehabilitation. Hospital and Community Psychiatry, 35, 356-362.
- Bond, G. (1992). Vocational Rehabilitation. In R.P. Liberman (Ed.) New York: Mcmillian, Handbook of Psychiatric Rehabilitation, 244-275.
- Bond, G. (1994). Supported work as a modification of the transitional employment model for clients with psychiatric disabilities. Introduction to Psychiatric Rehabilitation. 215-227.
- Bond, G., (1996). Supported employment for people with severe mental illness: a review. Submitted for publication, Indiana University-Purdue University Research Center.
- Bond, G., Dietzen, L., Vogler, K., Katuin, C., McGrew, J., & Miller, L. (1995). Toward a framework for evaluating cost and benefits of psychiatric rehabilitation: three case examples. Journal of Vocational Rehabilitation, 5, 75.
- Bond, G., Boyer S. (1988). Rehabilitation programs and outcomes. In J. A. Ciardiello & MD Bell (Eds.), Vocational Rehabilitation of Persons with Prolonged Psychiatric Disorders, (pp. 231-263). Baltimore, MD: Johns Hopkins University Press.
- Bond, G., & Dincin, J., (1986). Accelerating entry into transitional employment in a psychosocial rehabilitation agency. Rehabilitation Psychology, 31, 143-155.
- Bond, G., & Friedmeyer, M., (1987). Predictive validity of situational assessment at a psychiatric rehabilitation center. Rehabilitation Psychology, 32, 99-112.
- Booth, M. E. (1994). Effects of program factors on client outcomes: Evaluation of three clubhouse programs for persons with severe mental illness. (Doctoral dissertation, Virginia Commonwealth University, 1990). Dissertation Abstracts International, 4588, 54(12). (University Microfilms No. AAC 9409182)
- Borgeson, N. J. (1993). Prevention of attrition of severely mentally disabled persons from vocational rehabilitation services through personalized outreach and interagency collaboration. Dissertation Abstracts International, 53(08). (University Microfilms No. AAC9238780)
- Boodman, S. (1993, February 16). New hope for schizophrenia? Washington Post Health Magazine 10-12.
- Borison, R. (1995). Introduction: Antipsychotic treatments for schizophrenia. Psychiatric Annals, 25(5), 283.

- Braun, P., Kochansky, G., Shapiro, R., Greenberg, S., Gudeman, J., Johnson, S., & Shore, M. (1981). Overview: Deinstitutionalization of psychiatric patients. American Journal of Psychiatry, *131*, 736-749.
- Buchanan, R. (1995). Clozapine: Efficacy and Safety. Schizophrenia Bulletin *21(4)*, 579, 588.
- Buchsbaum, M. (1990). The frontal lobes, basal ganglia, and temporal lobes as sites for schizophrenia. Schizophrenia Bulletin *16*, 379-389.
- Buckley, P., Thompson, P., Way, L., Melzer, H. (1994). Substance abuse among patients with treatment-resistant schizophrenia: characteristics and implications for clozapine therapy. American Journal of Psychiatry, *151*:385-389.
- Casey, D. E. (1989). Clozapine. Neuroleptic-induced EPS and tardive dyskinesia. Psychopharmacology, *99*, S47-S53.
- Cella, E., Besancon, V., & Zipple, A. (1997). Expanding the role of clubhouses: Guidelines for establishing a system of integrated day services. Psychiatric Rehabilitation Journal, *21(1)*, 10-15.
- Ciarlo, J., Sherm, T., Tweed, D., Kirkpatrick, L., & Sachs-Ericsson, N. (1992). The Colorado social health survey of mental health service needs; sampling instrumentation and major findings in Evaluation and Program Planing *15*, 33-147.
- Clark, R. & Bond, G. (1995). Costs and benefits of vocational programs for people with serious mental illness. In: M. Moscarelli, (Ed.), The Economics of Schizophrenia. Sussex, England: John Wiley.
- Cnaan, R., Blankirtz, L., Messinger, K., & Gardner, Jr. (1988). Psychosocial rehabilitation: towards a definition. Psychosocial Rehabilitation Journal, *11*, 61-77.
- Cook, J, Pickett, S. (1995). Recent Trends in Vocational Rehabilitation for Persons With Psychiatric Disability. American Rehabilitation, *20(4)*, 2-12.
- Cooper, J., Blum, F., & Roth, R. (1991). The Biochemical Basis of Neuropharmacology, 6th Edition.
- Creese, I., Burt, D., Snyder, S. (1976). Dopamine receptor binding predicts clinical and pharmacological potencies of antischizophrenic drugs. Science *192*, 481-483.

- Davis, K., Kahn, R., Ko, G. & Davidson, M. (1991). Dopamine in schizophrenia: A review and reconceptualization. American Journal of Psychiatry, 148, 1474-1486.
- Dudeck, K., & Stein, R. (1992). Organizing for Clubhouses: the Massachusetts Success Story. Psychosocial Rehabilitation Journal, 16(2), 141-146.
- Dincin, J. (1975). Psychiatric rehabilitation. Schizophrenia Bulletin, 13, 131-148.
- Dincin, J., & Kaberon, D. (1979). Attendance as a predictor of success in rehabilitation of former psychiatric patients. Final report to the Chicago Community Trust, Thresholds, Chicago, Ill.
- Dincin, J., & Witheridge, T. (1982). Psychiatric rehabilitation as a deterrent to recidivism. Hospital Community Psychiatry, 33, 645-650.
- Dixon, L., Lehman, F., & Levine, J. (1995). Conventional antipsychotic medications for schizophrenia. Schizophrenia Bulletin, 21(4), 567
- Drake, R., Becker, D., Biesanz, J., Wyzik, P. & Torrey, W. (1996). Day treatment versus supported employment for persons with severe mental illness: A replication study. Psychiatric Services, 47, 1125-1127.
- Eichelman, B., & Hartwig, A. (1990). Ethical issues in selecting patients for treatment with clozapine. Hospital and Community Psychiatry, 41, 880-882.
- Essock, S., Hargreaves, W., Dohm, F., Goethe, J., Carver, L., & Hipshman, L. (1996). Clozapine Eligibility Among State Hospital Patients. Schizophrenia Bulletin 22(1), 15 & 24.
- Faloon, I., McGill C., & Boyd, J. (1980). What Is Schizophrenia? Los Angeles, University of Southern California.
- Farkas, T., Wolf, A., Jaeger, J., Brodie, J., Chrisman, D., & Fowler, J. (1984). Regional brain glucose metabolism in chronic schizophrenia: A position emission transaxial tomographic study. Archives of General Psychiatry. 41,293-300.
- Fawcett, J. (1996). Schizophrenia-a new ball game? Psychiatric Annals 26, 7, pp.384.
- Federal Register (August 14, 1987). The state supported employment services program. 30546.
- Fountain House. (1985). *Evaluation of clubhouse model community based psychiatric rehabilitation*. Final report to the National Institute of Handicapped Research (Contract No. 300-84-0124), Washington, D.C.

- Frank, R. G. (1991). Clozapine's cost-benefits. Hospital and Community Psychiatry, 42, 92.
- Goldman, H. H. (1991). Clozapine cost-benefits. Hospital and Community Psychiatry, 42, 92-93.
- Grebb, J., & Cancro, R. (1989). Schizophrenia: Clinical features. In H. I. Kaplan & B. J. Sadock (Eds.), Comprehensive textbook of psychiatry (5th ed.) (757-777). Baltimore: Williams & Wilkins.
- Grob, S. (1983). Psychosocial rehabilitation centers: Old wine in a new bottle. In I. Barofsky and R. Budson (Eds.), The chronic psychiatric patient in the community: Principles of treatment, New York: Spectrum Press, 265-280.
- Higgins, P. (1995). Clozapine And The Treatment Of Schizophrenia. Health & Social Work, 20(2), 124-125, 131.
- Hirsch, S. (1989). Meeting the vocational needs of individuals with psychiatric disabilities through supported employment. Journal of Rehabilitation, October/November/December, 26-31.
- Honigfeld G., Patin J. (1989). Predictors of response to clozapine therapy. Psychopharmacology, 99 (supp): S64-S67.
- Hughs, R., Woods, J., Brown, M., & Spaniol, L. (1994). Introduction, An Introduction To Psychiatric Rehabilitation. 1.
- Hughs, R. (1994). Psychiatric rehabilitation: An essential health service for people with serious and persistent mental illness. In An introduction To Psychiatric Rehabilitation. 12-14.
- IAPSRs (December 1988). Minutes, Board of Directors Meeting. St. Louis, MO.
- Jackson, R. (1992). How Work Works. Psychosocial Rehabilitation Journal, 63, 145-146.
- Jarl, B., (1992). Living with the Standards in a Growing Clubhouse. Psychosocial Rehabilitation Journal, 16(2), 31.
- Johnson, CG, Littrell KH, & Magill AM., (1994). Starting Patients on Clozapine in a Partial Hospitalization Program. Hospital & Community Psychiatry ; 45. 264-268.

- Jones, B. (1993). Schizophrenia: Into the Next Millennium. Canadian Journal of Psychiatry, 38 Suppl 3: S67-9.
- Kane, J., Honigfeld, G., Singer, J., Meltzer, H., & Clozaril Collaborative Study Group (1988). Clozapine for the treatment-resistant schizophrenic: A double-blind comparison with chlorpromazine. Archives of General Psychiatry, 45, 789-796.
- Kane, J., Honigfeld, G., Singer, J., Meltzer, H., & Clozaril Collaborative Study Group. (1989). Clozapine for the treatment-resistant schizophrenic: Results of a U.S. multi-center trial. Psychopharmacology, 99, S60-S63.
- Keith, S., Regier, D., & Rae, D. (1991). Schizophrenic disorders, In L. N. Robinson & Regser (Eds.), Psychiatric Disorders in America, New York: Free Press, 33-52.
- Lehman, A., Carpenter, Jr., W., Goldman, H., & Seinwachs, D. (1995). Treatment outcomes in Schizophrenia: Implications for Practice, Policy, and Research. Schizophrenia Bulletin, 21(4), 67.
- Lehman, A. (1995). Vocational rehabilitation in schizophrenia. Schizophrenia Bulletin, 653-654.
- Lehman, A., Thompson, J., Dixon, L., & Scott, J. (1995). Schizophrenia treatment outcomes research-Editors Introduction. Schizophrenia Bulletin, 565.
- Liberman, R., King, L., & DeRisi, W. (1976). Behavior analysis and therapy in community mental health. In Leitenberg, H. (Ed.), Handbook of Behavior Analysis and Modification, 566-603.
- Liberman, R. (1994). Psychosocial treatments of schizophrenia. Psychiatry, 57, 111-112.
- Lieberman, J., Safferman, A., Pollack, S., et al. (1994). Clinical effects of clozapine in chronic schizophrenia: response to treatment and predictors of outcome. American Journal of Psychiatry, 151, 1744-1752.
- Lindstrom, L. (1988). The effect of long-term treatment with clozapine in schizophrenia; A retrospective study in 96 patients treated with clozapine for up to 13 years. Acta Psychiatrica Scandinavica, 77, 524-529.
- Littrell, K. (1995). Maximizing schizophrenia treatment outcomes: A model for reintegration. Psychiatric Rehabilitation Journal, 19(1), 75-77.

- Long, P. (1996). Excerpts From "Surviving Schizophrenia" by E. Fuller Torrey, MD. Internet Mental Health (www.mentalhealth.com), 1.
- MacDonald-Wilson, K., Revell, W., Nguyen, N., et al. (1997). Supported employment outcomes for people with psychiatric disability: A comparative analysis. Journal of Vocational Rehabilitation, 1, 30-44.
- Macias, C., Jackson, R., Schroeder, C., Wang, Q. (1997). What is a clubhouse?: Report on the 1996 ICCD Clubhouse Survey. International Center for Clubhouse Development at Fountain House, Inc., 1-5.
- Malamud, T. (1985). Evaluation of clubhouse model community based psychiatry, National Institute of Handicapped Research. Office of Special Education and Rehabilitation Services. Washington, DC, US Department of Education.
- Malamud, T., & McCroy, D. (1988). Transitional employment and psychosocial rehabilitation. In J.A. Ciardiello & MD Bell (Eds.), Vocational Rehabilitation of Persons With Prolonged Mental Illness. Baltimore MD: Johns Hopkins Press. 150-162.
- Marder, S., & Van Putten, T. (1988). Who should receive clozapine? Archives of General Psychiatry, 45, 865-867.
- Mastboom, J., (1992). Forty Clubhouses: Model and Practices. Psychosocial Rehabilitation Journal, 16(2), 9-12.
- Maxmen, J., Ward, N. (1995). Schizophrenic Disorders, Essential Psychopathology and Its Treatment Second Edition Revised For DSM-IV. W.W. Norton & Company, 141.
- McFarland, B. (1992). Discontinuing clozapine: An example of explicit health care rationing. Administration and Policy in Mental Health, 19, 399-416.
- McGlashin, T. (1984). The chestnut lodge follow-up study: Long term outcome of schizophrenia and the affective disorders. Archives of General Psychiatry, 41, 586-601.
- McGlashin, T. (1986). Schizophrenia: Psychosocial therapies and the role of psychosocial factors in its etiology and pathogenesis. In A.J. Frances and R. E. Hales, eds. American Psychiatric Press, 5, 167-176.

- Melzer, H. (1992). Effect of Clozapine upon the Occupational Status of Treatment-resistant Schizophrenics. In J. Yesavage (Ed.), Clozapine: A compendium of selected readings (pp. 143-148). East Hanover, NJ: Sandoz Pharmaceuticals.
- Melzer, H. (1996). Predictors of response to clozapine. Psychiatric Annals, 26, 7, p.385.
- Melzer, H. (1995). Multiple-outcome criteria in schizophrenia; an overview of outcome with clozapine. European Psychiatry, 10, (suppl 1) 19S-25S.
- Melzer, H., Burnett, S., Bastani, B., & Ramirez, L. (1990). Effects of six months of clozapine treatment on the quality of life of chronic schizophrenic patients. Hospital and Community Psychiatry, 41, 892-897.
- Miller, D., Perry, P., Cadoret, R., Andreasen, N. (1994). Clozapine's effect on negative symptoms in treatment-refractory schizophrenics. Comprehensive Psychiatry, 35, No. 1, 8-15.
- Moxley, P. (1997). Clubhouse standards as a program development tool. Psychosocial Rehabilitation Journal, 17, 177-183.
- Naber, D., Leppig, M. Grohmann, R., & Hippus, H. (1989). Efficacy and adverse effects of clozapine in the treatment of schizophrenia and tardive dyskinesia-A retrospective study of 387 patients. Psychopharmacology, 99, S73-S76.
- Neese-Todd, S., & Weinberg, J. (1992). Public Academic Liaison: One Clubhouse Approach to Research and Program Evaluation. Psychosocial Rehabilitation Journal, 16(2), 147-148.
- Newman, L., (1970). Instant placement: A new model for providing rehabilitation services within a community mental health program. Community Mental Health Journal, 6, 401-410.
- Noble, J., & Collignon, F. (1987). System barriers to supported employment for persons chronic mental illness. In P. Wehman & M.S. Moon (Eds.), Vocational Rehabilitation and Supported Employment, Baltimore MD. 325-340.
- Pantelis, C. & Barnes, T. (1996). Drug strategies and treatment-resistant schizophrenia. Australian And New Zealand Journal Of Psychiatry, 30(1), 20-37.
- Pickar, D., Owen, R., Litman, R., Konicki, P., Gutierrez, L., & Rapaport, M. (1992). Clinical and biological response to clozapine in patients with schizophrenia. Arch General Psychiatry, 49, 345-353.

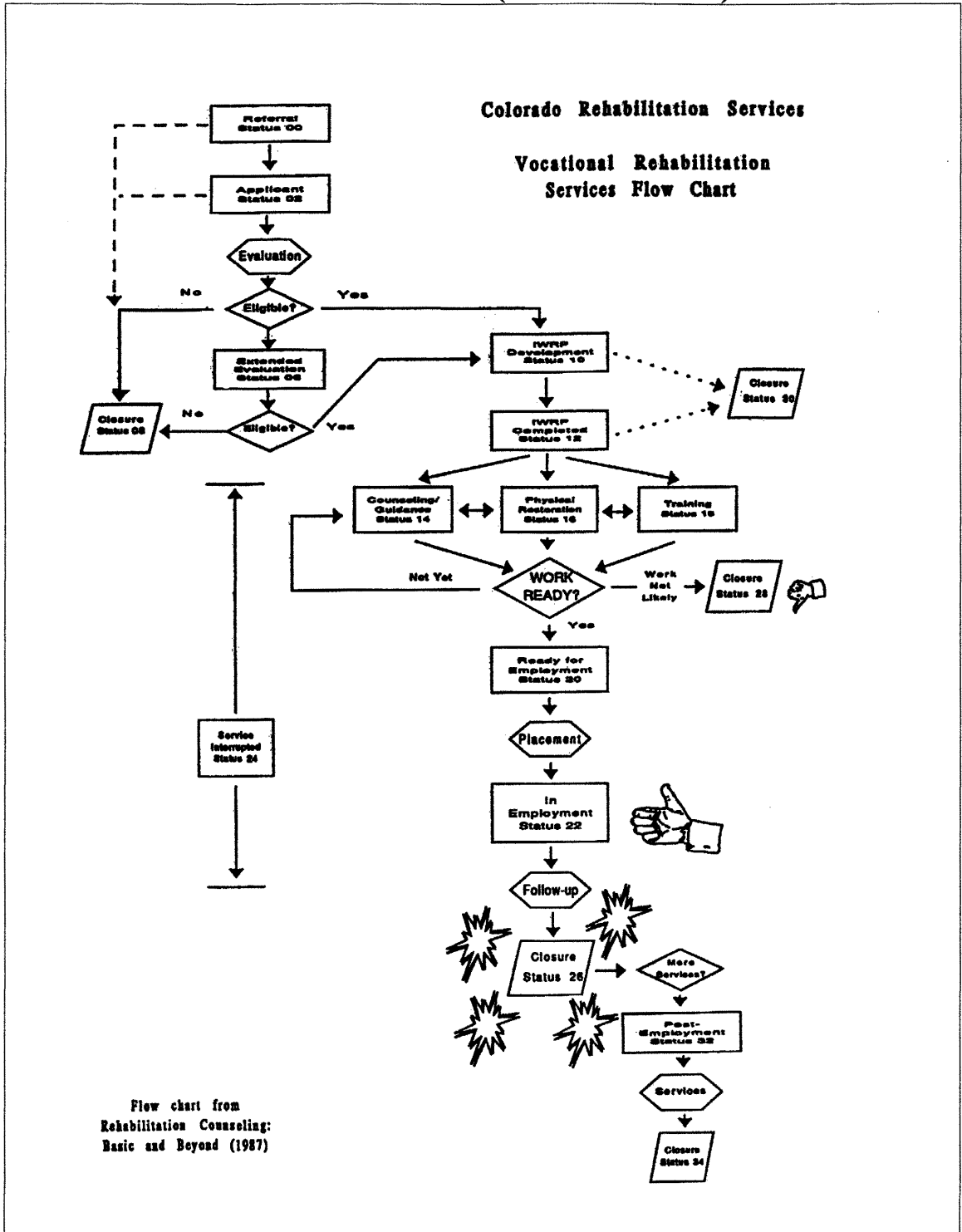
- Propst, R. (1992). Standards for Clubhouse Programs: Why and How They were Developed. Psychosocial Rehabilitation Journal, 16, 25-26.
- Purlee, G. (1994). Predictors of employment outcome for persons with serious mental illness. Dissertation Abstracts International, 54(11), (University Microfilms No. AAC 9410389).
- Redick, R., Witkin, M., Bethel, H., & Mandersfield, R. (1985). Changes in inpatient, outpatient, and partial care services in mental health organizations, United States, 1970-80. Mental Health Statistical Note No. 168. (Available from the U.S. Department of Health and Human Services, NIHM).
- Rehab Brief* (1987). Supported employment. Vol. 10, #1. PSI International 510 N. Washington, Falls Church, VA, 22046.
- Reid, W. Pham, V., & Rago, W. (1993). Clozapine use by state programs: Public mental health systems respond to a new medication. Hospital and Community Psychiatry, 44, 739-743.
- Revell, W., Arnold, S., Taylor, B., & Zaitz-Blotner (1982). Project Transition: Competitive employment service for the severely handicapped mentally retarded. Journal of Rehabilitation, 48, 31-35.
- Revicki, D., Luce, B., Weschler, J., Brown, R., & Adler, M. (1990). Cost effectiveness of clozapine for treatment-resistant schizophrenia patients. Hospital and Community Psychiatry, 41, 850-854.
- Rogers, S., Walsh, D., Massotta, L., & Danely, K. (1991). Massachusetts survey of client support programs: final report. Unpublished manuscript, Center for Psychosocial Rehabilitation, Boston, MA.
- Rogers, S., (1997). Cost-benefit studies in vocational services. Psychiatric Rehabilitation, 20, 33.
- Rutman, I. (1994). What is psychiatric rehabilitation? An Introduction To Psychiatric Rehabilitation. IAPSRS, Columbia MD, 4.
- Sandoz Pharmaceuticals. (1991). Clozaril package insert. East Hanover, NJ: Author.
- Saraceno, B. (1995). La fine dell'Intrattenimento. Milano: Etas Libra.
- Saraceno, B. (1997). Psychosocial rehabilitation as a public health strategy. Psychiatric Rehabilitation Journal, 20(4), 11-14.

- Schooler, N. (1996). Advances in maintenance treatment. Psychiatric Annals 26(8), 519
- Silvestri, M. (1994). Relationships among work personality, social adjustment, demographic variables, psychiatric symptoms, and work status in outpatients with schizophrenia. Dissertation Abstracts International, 55(05). (University Microfilms No. AAC 9423010)
- Stratoudakis, J. (1986). Rehabilitation of the mentally ill: Psychosocial, vocational, and community support perspectives. Annual Review of Rehabilitation, 5, 255-284.
- Suddath, R., Christison, G., Torrey, E., Casanova, M., & Weinberger, D. (1990). Anatomical abnormalities in the brains of monozygotic twins discordant for schizophrenia. New England Journal of Medicine, 322, 789-794.
- Sunshine, H., Witkin, M., Atay, J., & Manderscheid, R. (1992). Partial Care in Mental Health Organizations: United states and Each State, 1988. U.S. Department of Health and Human Services, Mental Health Statistical Note No. 205, 1.
- Torrey, E. (1983). Surviving Schizophrenia: A Family Manual.
- Turner, J., & TenHoor, W. (1978). The NIMH Community Support Program: Pilot approach to a needed social reform. Schizophrenia Bulletin, 4, 319-348.
- Umbrecht, D., Kane, J. (1996). Medical complications of new antipsychotic drugs, Schizophrenia Bulletin, 22, 475-483.
- Van Hasselt, V., Hersen, M., (1994). Pharmacological interventions, Advanced Abnormal Psychology, 316, 520-521.
- Wallis, C., & Willwerth, J. (1992, July 6). Schizophrenia: A new drug brings patients back to life. Time, 52-57.
- Warner, R. (1994). Recovery from schizophrenia. Psychiatry and Political Economy (2nd edition), 23.
- Waters, B. (1992). The Work Unit: The Heart of the Clubhouse. Psychosocial Rehabilitation Journal, 16(2), 42.
- Wehman, P. (1988). Supported employment: Toward zero exclusion of persons with severe disabilities. In P. Wehman & M.S. Moon (Eds.), Vocational Rehabilitation and Supported Employment, 3-14.

- Weinstock, P., Barker, T. (1995). Mental Health and Vocational Rehabilitation Collaboration: Local Strategies That Work. Psychosocial Rehabilitation Journal, 35.
- Wilkinson, W. (1992). New Day, Inc., of Spartanburg: Hospitalization Study. Psychosocial Rehabilitation Journal, 16, 163-168.
- World Health Organization. (1996). Psychosocial Rehabilitation. A consensus statement. Geneva: WHO/MNH/MND/96, 2.
- Yesavage, J., & Honigfeld, G. (1992). Effect of clozapine upon the residency status of treatment-resistant schizophrenic patients. In J. Yesavage (Ed.), Clozapine: A Compendium of selected readings (pp. 135-141). East Hanover, NJ: Sandoz Pharmaceuticals.

Appendices

**Appendix A: Flow Diagram of the
Rehabilitation Process (Definition of status)**



Appendix B:
Colorado Mental Health Centers
With Clubhouse Model

Center Name	Clubhouse Name
1) Adams Community Mental Health Center	S.T.E.P. Clubhouse
2 Arapahoe Community Mental Health Center	Star Reach Clubhouse
3) Boulder Community Mental Health Center	Chinook Clubhouse
4) Denver Mental Health Corporation	Wishing Well Clubhouse
5) Jefferson Community Mental Health Center	Summit Center
6) Weld Community Mental Health Center	Frontier House

Appendix C: Clubhouse Standards

International Center for Clubhouse Development

Fountain House, Inc.

425 West 47th Street

New York, NY 10036

January, 1994

Membership

1. Membership is voluntary and without time limits.
2. The clubhouse has control over its acceptance of new members. Membership is open to anyone with a history of mental illness, unless that person poses a significant and current threat to the general safety of the clubhouse community.
3. Members choose the way they utilize the clubhouse, and the staff with whom they work. There are no agreements, contracts, schedules, or rules intended to enforce participation of members.
4. All members have equal access to every clubhouse opportunity with no differentiation based on diagnosis or level of functioning.
5. Members, at their choice, are involved in the writing of all records reflecting their participation in the clubhouse. All such records are to be signed by both member and staff.
6. Members have a right to immediate re-entry into the clubhouse community after any length of absence, unless their return poses a threat to the community.

Relationships

7. All clubhouse meetings are open to both members and staff. There are no formal member only meetings or formal staff only meetings where program decisions and member issues are discussed.
8. Clubhouse staff are sufficient to engage the membership, yet small enough in number to make carrying out their responsibilities impossible without member involvement.

9. Clubhouse staff have generalist roles. All program staff share employment, housing, evening and weekend, and unit responsibilities. Clubhouse staff do not divide their time between clubhouse and other major work responsibilities.

10. Responsibility for the operation of the clubhouse lies with members and the staff and ultimately with the clubhouse director. Central to this responsibility is the engagement of members and the staff in all aspects of the clubhouse operation.

Space

11. The clubhouse has its own identity including its own name, mailing address and telephone number.

12. The clubhouse is located in its own physical space. It is separate from the mental health center or institutional settings, and is impermeable to other programs. The clubhouse is designed to facilitate the work-ordered day and at the same time be attractive, adequate in size, and convey a sense of respect and dignity.

13. All clubhouse space is member and staff accessible. There are no staff only or member only spaces.

Work-ordered Day

14. The work-ordered day engages members and staff together, side by side in the running of the clubhouse. The clubhouse focuses on strengths, talents and abilities; therefore, the work-ordered day is inconsistent with medication clinics, day treatment or therapy programs within the clubhouse.

15. The work done in the clubhouse is exclusively the work generated by the clubhouse in the operation and enhancement of the clubhouse community. No work for outside individuals or agencies, whether for pay or not, is acceptable in the clubhouse. Members are not paid for any clubhouse work, nor are there any artificial reward systems.

16. The clubhouse is open at least 5 days a week. The work-ordered day parallels normal working hours.

17. All work in the clubhouse is designed to help members regain self worth, purpose and confidence; it is not intended to be job-specific training.

18. Members have the opportunity to participate in all the work of the clubhouse, including administration, research, intake and orientation, reach out, hiring, training and evaluation of staff, public relations, advocacy and evaluation of clubhouse effectiveness.

Employment

19. The clubhouse enables its members to return to paid work through Transitional Employment and Independent Employment; therefore, the clubhouse does not provide employment to members through in-house businesses, segregated clubhouse enterprises or sheltered workshops.

Transitional Employment

20. The clubhouse offers its own transitional employment program which provides as a right of membership opportunities for members to work on job placements in business and industry. the Transitional Employment program meets the following basic criteria:

- a. The desire to work is the single most important factor determining placement opportunity.
- b. Placement opportunities will continue to be available regardless of success or failure in previous placements.
- c. Members work at the employer's place of business.
- d. Members are paid the prevailing wage rate, but at least minimum wage, directly by the employer.
- e. Transitional Employment placements are drawn from a wide variety of job opportunities.
- f. Transitional Employment placements are part-time and time-limited, generally 20 hours per week and six months in duration.
- g. Selection and training of members on transitional employment is the

- responsibility of the clubhouse, not the employment.
- h. Clubhouse members and staff prepare reports on TE employment for all appropriate agencies dealing with members' benefits.
 - i. Transitional Employment Placements are managed by clubhouse staff and members and not by TE specialists.
 - j. There are no Transitional Employment placements within the clubhouse itself or its auspices agency.

Independent Employment

- 21. The clubhouse assists and supports members to secure, sustain and upgrade independent employment.
- 22. Members working full time continue to have available all clubhouse supports and opportunities including advocacy for entitlement, and assistance with housing, clinical, legal, financial and personal issues as well as participation in the evening and weekend programs.

Functions of the House

- 23. The clubhouse is located in an area where access to local transportation can be assured, both in terms of getting to and from the program and accessing TE opportunities. The Clubhouse provides or arranges for effective alternatives whenever access to public transportation is limited.
- 24. Community support services are provided by members and staff of the clubhouse. Community support activities are centered in the work unit structure of the clubhouse and include helping with entitlements, housing, and advocacy, as well as assistance in finding quality medical, psychological, pharmacological and substance abuse services in the community.
- 25. The clubhouse is committed to securing a range of choices of safe, decent and affordable housing for all members. The clubhouse has access to housing opportunities

that meet these criteria, or if unavailable, the clubhouse develops its own housing program. In clubhouse housing:

- a. members and staff manage the program together;
- b. members who live there do so by choice;
- c. members choose the location of their housing and their roommates;
- d. policies and procedures are developed in a manner congruent with the rest of the clubhouse culture;
- e. the level of support increases or decreases in response to the changing needs of the member;
- f. members and staff actively reach out to help members keep their housing, especially during periods of hospitalization.

26. The clubhouse provides members education, which focuses both on basic tools such as literacy and computer skill as well as more advanced educational opportunities. As a significant dimension of the work-ordered day, members serve as major resources for tutoring and teaching in the member education program.

27. The clubhouse assists members to take advantage of the adult educational system in the community in support of their vocational and personal aspirations.

28. The clubhouse has a method and takes responsibility for objectively evaluating its own effectiveness.

29. The clubhouse director, staff, members, and other appropriate persons participate in a three week training program in the clubhouse model at a certified training base.

Consultations by the faculty for clubhouse development are provided all programs seeking to implement the clubhouse model.

30. The clubhouse has recreational and social programs during evenings and on weekends. Holidays are celebrated on the actual day they are observed.

31. The clubhouse provides an effective reach out system to members who are not

attending, becoming isolated in the community, or re-hospitalized.

Funding, Governance and Administration

32. The clubhouse has an independent Board of Directors, or if it is affiliated with a sponsoring agency, has a separate Advisory Board comprised of individuals uniquely positioned to provide fiscal, legal, legislative, consumer and community support and advocacy for the clubhouse.

33. The clubhouse develops and maintains its own budget, approved by the board or advisory board prior to the beginning of the fiscal year and monitored routinely during the fiscal year.

34. Staff salaries are competitive with comparable positions in the mental health field.

35. The clubhouse has the support of the appropriate mental health authorities and has required licenses and certifications. The clubhouse seeks and maintains effective relationships with family, consumer and professional organizations.

36. The clubhouse holds open forums and has procedures which enable members and staff to actively participate in decision-making regarding governance, policy-making, and the future direction and development of the clubhouse.

Appendix D

Medications Prescribed for Schizophrenia

Other Than Clozapine

<u>Brand Name</u>	<u>Chemical Name</u>
1) Compazine	Prochlorperazine
2) Haldol	Halopridol
3) Loxitane	Loxapinesuccinate
4) Mellaril	Thioridazine
5) Navane	Thiothixene
6) Prolixin	Fluphenazine Hydrochloride
7) Risperdal	Risperidone
8) Stelazine	Trifluoperazine Hydrochloride
9) Thorazine	Chlorpromazine Hydrochloride
10) Trilafon	Perphenazine

Appendix E

Colorado Mental Health services:

Data Collection

COLORADO MENTAL HEALTH SERVICES			
MENTAL HEALTH CENTER _____ CLIENT NAME _____		(for div. use only) CODE _____	
CODE _____			
1			
YEAR OPENED	6/30/94-7/1/95 _____	6/30/95-7/1/96 _____	Both _____
2			
GENDER	MALE _____	FEMALE _____	
3			
PRIMARY DIAGNOSIS	SCHIZOPHRENIA _____	BORDERLINE _____	
DUAL DIAGNOSIS _____	BIPOLAR _____	DYSTHYMIA _____	
_____	DEPRESSION _____	SCHIZOAFFECTIVE _____	
OTHER _____	PANIC DISORDER _____	PTSD _____	
4			
MEDICATION (ONLY IF SCHIZOPHRENIA IN #3)	HALDOL _____	RISPERDAL _____	
_____	LOXITANE _____	STELAZINE _____	
_____	MELLARIL _____	THORAZINE _____	
CLOZARIL _____	NAVANE _____	TRILAFON _____	
COMPAZINE _____	PROLIXIN _____	OTHER _____	
5			
PROGRAM AT ENROLLMENT/CERTIFICATION	DAY TREATMENT/ PARTIAL CARE _____	CLUBHOUSE MODEL _____	BOTH NEITHER _____
6			
SUPPORTED EMPLOYMENT STATUS	UNEMPLOYED OR EMPLOYED LESS THAN 60 DAYS _____	EMPLOYED FOR 60 DAYS OR MORE (STATUS 26) _____	EMPLOYED FOR 6 MONTHS OR MORE _____

Appendix F: DSM-IV

Criteria for Schizophrenic Disorder

A. Presence of characteristic psychotic symptoms in the active phase; either (1), (2), or (3) for at least one week (unless the symptoms are successfully treated):

(1) Two of the following:

(a) delusions

(b) prominent hallucinations (throughout the day for several days or several weeks, each hallucination experience not being limited to a few brief moments)

(c) incoherence or marked loosening of associations

(d) catatonic behavior

(e) flat or grossly inappropriate affect

(2) bizarre delusions (i.e., involving a phenomenon that the person's culture would regard as totally implausible, e.g., thought broadcasting, being controlled by a dead person)

(3) prominent hallucinations (as defined in (1)(b) above) of a voice with content having no apparent relation to depression or elation, or a voice keeping up a running commentary on the person's behavior or thoughts, or two or more voices conversing with each other

B. During the course of the disturbance, functioning in such areas as work, social relations, and self-care is markedly below the highest level achieved before onset of the disturbance (or, when the onset is in childhood or adolescence, failure to achieve expected level of social development).

C. Schizoaffective Disorder and Mood Disorder with Psychotic Features have been ruled out, i.e., if a Major Depressive or Manic Syndrome has ever been present during an active phase of the disturbance, the total duration of all episodes of a mood syndrome has been brief relative to the total duration of the active and residual phases of the disturbance.

D. Continuous signs of the disturbance for at least six months. The six-month period must include as active phase during which there were psychotic symptoms characteristic of schizophrenia (symptoms in A), with or without a prodromal or residual phase.

E. It cannot be established that an organic factor initiated and maintained the disturbance.

F. If there is a history of Autistic Disorder, the additional diagnosis of schizophrenia is made only if prominent delusions or hallucinations are also present.

Appendix G: Research Raw Data

1) Employment and Program (Figure 1):

		Employed	Unemployed	Row total
Count	Day	22	35	57
Row %		38.60%	61.40%	41%
Col%		28.60%	56.50%	
	Club	55	27	82
		67.10%	32.90%	59%
		71.40%	43.50%	
Column		77	62	139
Total		55.40%	44.60%	100%

Note. Chi-square significance .00089.

2) Employment and Medication (figure 2):

		Employed	Unemployed	Row Total
Count	Other Meds	59	64	123
Row %		48%	52%	82%
Col %		74.70%	90.10%	
	Clozapine	20	7	27
		74.10%	25.90%	18%
		25.30%	9.90%	
Column		79	71	150
Total		52.70%	47.30%	100%

Note. Chi-square significance .01388

3) Employment: Clozapine and Day treatment (Figure 3):

		Other Meds	Clozapine	Row total
Count	Employed	59	64	57
Row %		77.30%	22.70%	82%
Column %		33.30%	83.30%	
	Unemployed	34	1	35
		97.10%	2.90%	
Column		51	6	57
Total		89.50%	10.50%	100%

Note. Chi-square significance .01733

4) Employment: Clozapine and Clubhouse (Figure 3):

		Other Meds	Clozapine	Row Total
Count	Employed	40	15	55
Row %		72.70%	27.30%	67.10%
Column %		63.50%	78.90%	
	Unemployed	23	4	27
		85.20%	14.80%	32.90%
		36.50%	21.10%	
Column		63	19	82
Total		76.80%	23.20%	100%

Note. Chi-square significance .20893

5) Employment: Day Treatment and Clubhouse For All Diagnosis (Figure 4)

		Other Meds	Clozapine	Row Total
Count	Employed	40	15	55
Row %		72.70%	27.30%	67.10%
Column %		63.50%	78.90%	
	Unemployed	23	4	27
		85.20%	14.80%	32.90%
		36.50%	21.10%	
Column		63	19	82
Total		76.80%	23.20%	100%

Note. Chi-square significance.00137

6) Employment: Gender and Day Treatment For All Diagnosis (Figure 5)

		Employed	Unemployed	Row Total
Count	Male	34	51	85
Row %		40.00%	60.00%	58.60%
Column %		56.70%	60.00%	
	Female	26	34	60
		43.30%	56.70%	41.40%
		43.30%	40.00%	
Column		60	85	145
Total		41.40%	58.60%	100%

Note. Chi-square significance .68814

7) Employment: Gender and Clubhouse For All Diagnosis (Figure 5)

		Employed	Unemployed	Row Total
Count	Male	67	43	110
Row %		60.90%	39.10%	50%
Column %		51.90%	47.30%	
	Female	62	48	110
		56.40%	43.60%	50%
		48.10%	52.70%	
Column		129	91	220
Total		58.60%	41.40%	100%

Note. Chi-square significance .49367

8) Employment: Geographical Area and Day Treatment for All Diagnosis

		Employed	Unemployed	Row Total
Count	Denver	25	40	65
Row %		38.50%	61.50%	60.70%
Column %		54.30%	65.60%	
	Urban	21	21	42
		50%	50%	39.30%
		45.70%	34.40%	
Column		46	61	107
Total		43%	57%	100%

Note. Chi-square significance .23909

9) Employment: Geographical Area and Clubhouse for All Diagnosis

		Employed	Unemployed	Row Total
Count	Denver	96	55	151
Row %		63.60%	36.40%	65.70%
Column %		71.10%	57.90%	
	Urban	39	40	79
		49.40%	50.60%	34.30%
		28.90%	42.10%	
Column		135	95	230
Total		58.70%	41.30%	100%

Note. Chi-square significance .03768

10) Employment and Year For All Diagnosis

		1994-1995	1995-1996	Row Total
Count	Employed	139	80	219
Row %		63.50%	36.50%	50.10%
Column %		54.90%	43.50%	
	Unemployed	114	104	218
		52.30%	47.70%	49.90%
		45.10%	56.50%	
Column		253	184	437
Total		57.90%	42.10%	100%

Note. Chi-square significance .01798

**Appendix H: Colorado Division
of Mental Health Letter**

STATE OF COLORADO

COLORADO DEPARTMENT OF HUMAN SERVICES

OFFICE OF HEALTH AND REHABILITATION SERVICES
George Kawamura, Manager

Mental Health Services
3824 West Princeton Circle
Denver, Colorado 80236
Phone (303) 762-4088
TDD (303) 762-4101
FAX (303) 762-4373

Thomas J. Barrett
Director



Roy Romer
Governor

Barbara McDonnell
Executive Director

Karen Bays
Managing Director

November 27, 1996

Human Research Committee
608 University Services Center
Colorado State University
Fort Collins, CO 80523

Dear Committee Members:

Dennis Beckel has requested permission to access archival data from Mental Health Services (MHS) in order to complete an analysis of the impact of clozaril and clubhouse programs for people with schizophrenia. This information is currently available in our data files or can be obtained with minimal effort on the part of MHS staff. The data will not be identified by name and will not require the collection of any additional information from consumers.

MHS is happy to provide Dennis access to this information and we are very interested in obtaining the results of this study. This information will be very useful in improving the services that are provided through Mental Health Services and Voc Rehab.

If you have any question, please feel free to call.

Sincerely,

A handwritten signature in black ink, appearing to read "Tom Barrett".

Tom Barrett, PhD
Director

Appendix I: CSU Human Subjects

Committee Letter



Office of Regulatory Compliance
Office of Vice President for Research
and Information Technology
Fort Collins, CO 80523
(970) 491-1563
FAX (970) 491-1958

MEMORANDUM

TO: Jim Banning, School of Education

FROM: Celia S. Walker, Administrator *Celia S. Walker*
Human Research Committee

SUBJECT: PROJECT APPROVAL
Title: Clozaril and Clubhouse Treatment Model and Vocational Outcomes of Adults with Schizophrenia
Protocol No.: 97-004H
Funding Agency: N/A
Funding Agency Deadline: N/A

DATE: January 14, 1997

I am pleased to inform you that the above-referenced project was approved by the Human Research Committee on January 9, 1997 for the period January 9, 1997 through January 9, 1998. Because of the nature of this research, it will not be necessary to obtain a signed consent form.

A status report of this project will be required within a 12-month period from the date of approval. The necessary form (H-101) will be mailed to you prior to that date.

It is the responsibility of the investigator to immediately inform the Committee of any serious complications, unexpected risks or injuries resulting from this research.

It is also the investigator's responsibility to notify the Committee of any changes in experimental design or consent procedures (file Form H-101).

Any questions about the Committee's action on this project should be directed to me.
xe Dennis Beckel