INTEGRATED TREATMENT FOR PERSONS WITH CONCURRENT DISORDERS

INTEGRATED TREATMENT FOR PERSONS WITH CONCURRENT DISORDERS: EFFECTS ON HOUSING STATUS IN A CANADIAN INNER-CITY

By

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ABSTRACT

Objective: Residential outcomes of adults with severe and persistent mental illness (SPMI) and substance use disorders were studied over 18-months, during which participants received integrated concurrent disorders services from two models of community-based intensive case management programs. Of primary interest in this analysis were the risks associated with co-occurring addictions on housing quality and stability, and the relative effectiveness of assertive community treatment (ACT) and intensive case management (ICM) on housing outcomes. Methods: Data for this secondary analysis was drawn from one of six projects organized under the Community Mental Health Evaluation Initiative. Clients who were diagnosed as having SPMI with and without co-morbid substance dependence (N=80) were randomly assigned to two case management programs in Toronto, Canada. All clients with concurrent disorders received integrated mental health and substance abuse treatment, but half were provided more fully integrated services from ACT. Housing was classified in one of three categories to describe the quality and consistency of residential tenure: stable housing, unstable accommodation defined by number of address changes, or homeless. Results: Participants with concurrent disorders were much more likely to be homeless or living in unstable, substandard housing than subjects without substance dependence. ICM clients with co-morbid disorders showed greater improvement on housing outcomes, but both case management groups showed strong gains on subjective measures of community adjustment, including empowerment, social support, and symptom distress. Housing stability was mediated by intensity of service contacts. Conclusion: Integrated treatment is a recent innovation in service delivery for persons with concurrent disorders. The favourable outcomes found for ICM in this study raise questions about the relative effectiveness of different implementation strategies to achieve integrated treatment within individual case management programs. The results provide strong support for the hypothesis that service intensity is a critical component promoting community tenure for this at-risk population.

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CHAPTER I

INTRODUCTION

The high rate of substance use disorders among people with severe and persistent mental illness (SPMI) has become a major concern for policymakers and clinicians in the mental health and addiction fields. In Canada and the United States, about 50% of individuals with SPMI will develop a substance use disorder in their lifetime (Cuffel, 1996; Health Canada, 2001; Regier et al., 1990). Approximately 25 to 35% exhibit current substance abuse or dependence (Mueser et al., 1995a). Without appropriate treatment, persons with concurrent disorders are at increased risk of relapse and hospitalization (Drake et al., 1998), depression and suicidality (Bartels et al., 1992), violence (Steadman et al., 1998), incarceration (Abram & Teplin, 1991), HIV infection (Davis, 1998; Susser et al., 1997a), and homelessness (Hurlburt et al., 1996).

The economic cost of treatment for these consumers far exceeds that for singly diagnosed individuals, stemming primarily from frequent utilization of costly services such as emergency rooms and inpatient hospitalizations (Dickey & Azeni, 1996). In order to decrease the use of acute psychiatric services and improve outcomes associated with concurrent disorders, the development of more effective treatment programs for this population has emerged as a major health care and research priority (Health Canada, 2001).

One important area of focus is the growing problem of homelessness among this group. In Canada, approximately 10 to 20% of homeless people meet diagnostic criteria for SPMI co-occurring with active substance use (City of Toronto, 1999; Mental Health Policy Research Group, 1998). Studies indicate that substance use is the central clinical factor associated with housing crises and homelessness for persons with SPMI (Drake et al., 1996; Hurlburt et al., 1996). Substance use can lead to symptom exacerbation and disruptive behaviours that threaten the stability of housing arrangements (Bebout et al., 1997). Drug or alcohol dependence contributes to financial problems and increased conflicts with social supports (City of Toronto, 1999). For those who are poor and disabled, the combined social and economic consequences of substance use force many into homelessness. Consumers with alcohol problems are twice as likely to become homeless as persons with SPMI without alcohol abuse or dependence (Hurlburt et al., 1996). Drug abuse or dependence disorders increase the risk of homelessness six-fold for persons with schizophrenia compared to those without co-occurring drug problems (Olfson et al., 1999).

Homeless persons with concurrent disorders have complex needs and require a wide range of services, including housing, mental health and substance abuse treatment, and health care. Many communities lack sufficient resources to meet these needs, particularly in the areas of affordable housing and case management services specialized in concurrent disorders and homelessness (Randolph et al. 1997). Available community-based treatment and housing programs have been criticized for their inaccessibility to this population (Morrissey et al., 1997). As a result, few of these vulnerable individuals receive the treatment and rehabilitation they need to return to normal functioning. A Toronto survey found that only 25% of the homeless sample had obtained some form of mental health services and less than 20% received substance abuse treatment in the previous year (Mental Health Policy Research Group, 1998). When homeless mentally ill persons in the United States were asked to identify barriers to their access to services, nearly one-third reported they did not know where to go for needed resources (Rosenheck & Lam, 1997). Another 27% had experienced confusion or frustration in their efforts to obtain services, and identified long waiting lists as a major obstacle. More than 16% reported they had been denied service. In a recent Canadian survey, almost half of homeless respondents were unfamiliar with local community mental health programs (Stuart & Arboleda-Florez, 2000).

Substance disorders are a significant risk factor for violent behaviours that can lead to the denial or termination of services (Rachbeisel et al., 1999). The prevalence of violence among persons with SPMI is 17.9% but increases to 31.1% for persons with a co-occurring substance use disorder (Steadman et al., 1998). The rate of violence in this population is not static, but appears to peak during periods of acute psychotic crises. Neuroleptic medications stabilize psychiatric symptoms, substantially reducing this risk (Steadman et al., 1998). Mental health and housing programs, however, often screen individuals with a history of violence, limiting the resources available to homeless persons with concurrent disorders (e.g. Goldfinger et al., 1999; Morse et al., 1997).

Homeless individuals with SPMI or concurrent disorders may also be reluctant to access community resources. In the U.S. survey, the largest proportion of respondents (35.1%) reported they had never sought services (Rosenheck & Lam, 1997). In a qualitative study, homeless men reported they would seek care only in "grave emergencies" because of previous negative experiences in traditional health care programs (Murray, 1996: 22). The men in this study described feelings of humiliation and rejection after these service contacts. Psychiatric symptoms, including depression, paranoia, and the neurobiological, cognitive, and behavioural deficits associated with the negative symptoms of schizophrenia, also decrease the likelihood that persons with SPMI would have the initiative required to seek out services or advocate for themselves.

Assertive case management provides outreach to these difficult-to-engage individuals by bringing necessary services to clients wherever they are located in the community. This approach has proven effective at overcoming engagement barriers and facilitating access to resources (Rosenheck & Lam, 1997). Two case management models, intensive case management (ICM) and assertive community treatment (ACT), were developed in response to the needs of domiciled high service users with SPMI who fail to engage in standard clinic-based case management programs. Both models provide intensive mental health services in the community through assertive outreach. ACT is the more costly approach, with multidisciplinary teams delivering the majority of required services to clients on a daily basis. ICM teams typically have larger individual caseloads and maintain less frequent contact with clients. Unlike ACT, ICM teams do not provide a full range of comprehensive services in-house, but broker responsibility for some areas of care to other agencies (Ontario Ministry of Health and Long-Term Care, 1999).

An accelerating pace of research on concurrent disorders over the past decade provides evidence that integrated treatment models, combining mental health and substance abuse services within one program, achieve better outcomes for this population than traditional case management services (Drake et al., 2001; Health Canada, 2001; RachBeisel et al., 1999). Few studies have examined how integrated service impacts on an urban homeless population with co-occurring disorders. The majority of this research has been conducted in the United States where most of the controlled studies focus on the ACT model. The superiority of integrated treatment, particularly within the assertive community treatment model, has yet to be proven in the context of Canada's more accessible medicare system.

CHAPTER II

SEVERE AND PERSISTENT MENTAL ILLNESS AND HOUSING STABILITY

Approximately two percent of the population have a severe and persistent mental illness (Health Systems Research Unit, 1997a). SPMI defines a condition of marked psychiatric impairment in functioning that often requires long-term care in the community. Three criteria are used to identify individuals with the most debilitating mental health problems: diagnosis, disability, and duration (Ontario Ministry of Health and Long-Term Care, 1999). The majority of people with SPMI have a diagnosis of a schizophrenia-spectrum disorder or bipolar disorder. Other psychiatric diagnoses can include major depression or severe anxiety disorders (Bond et al., 2001). The second criterion, disability, refers to an impairment in functioning that severely limits an individual's ability to manage daily activities such as basic living skills, work, and social relationships. To meet the duration criterion, a person must have chronic and acute mental health problems. This is determined by the duration of symptoms and disability, and by the amount of intensive psychiatric treatment being used over a period of time.

People with severe and persistent mental illness represent a small percentage of the population but have become a priority in Canada's mental health care reform (Health Systems Research Unit, 1997a). After the shift in Ontario's mental health policy in the 1960s from psychiatric hospitals to decentralized community services, the mental health care system failed to respond to the comprehensive needs of individuals with SPMI for treatment and support to increase their capacity for independent community living (Health Canada, 2001). As a result of inadequate community-based care, many persons with severe psychiatric disorders repeatedly experience severe psychotic decompensation and consume a disproportionate amount of costly acute psychiatric services. The readmission rates of persons with SPMI in Ontario are as high as 40 percent within one year of discharge (Canadian Mental Health Association, 2000).

With the shift in the locus of care, the delivery of medical-therapeutic services to consumers in the community became a primary concern. Mental health care providers regarded housing as a social welfare issue and generally failed to address this area of need (Carling, 1993). Increasingly, people with SPMI demonstrated difficulty in attaining and maintaining stable, quality accommodation, and were either marginally housed or relying on the emergency hostel system for shelter. By the 1980s, a majority of people with serious mental health issues were living in inadequate housing or were homeless in Canada and the United States (National Institute of Mental Health, 1980; Trainor et al., 1992).

In Toronto, nearly 30,000 people were estimated to be homeless in 1998, based on the hostel population (City of Toronto, 2001). Compared to the hostel census taken in 1988, this figure represents a 75% increase in the city's homeless numbers in a decade. The risk of homelessness among people with SPMI is 10 to 20 times higher than the general population (Susser et al., 1997b). Numerous studies provide evidence of the link between the quality of living conditions and personal health outcomes for persons with SPMI (Hwang, 2001; Kuno et al., 2000; Nordentoft & Wandall-Holm, 2003; Winkleby &

White, 1992). The lack of decent, permanent housing compromises physical and mental health as well as the quality of life of this vulnerable population.

Persons who are homeless are at greatly increased risk of morbidity and mortality. In Toronto, the mortality rate for men, aged 18 to 24, is 8.3 times higher than the mean for the general population in this age group (Hwang, 2001). Homeless males in the 25 to 44 year old cohort have mortality rates 3.7 times higher, and those who are 45 to 64 are at 2.3 times the risk of mortality than their counterparts in the general population. Homeless men are nine times more likely to be murdered than domiciled males (Hwang, 2000). Forty percent of homeless individuals surveyed in Toronto reported they had been assaulted and 21% of homeless women had been raped in the previous year (Crowe & Hardill, 1993). A recent study by Kuno and colleagues (2000) found that poisoning and injury were the most frequently cited reasons for hospitalization in homeless subjects with SPMI.

Not only are homeless individuals with mental health problems vulnerable to the risks of life on the streets and in the shelters, there is substantial evidence of worse health status. They are at increased risk of contracting infectious diseases such as hepatitis, tuberculosis and HIV (Hwang, 2001). Approximately 40% suffer from such chronic physical health problems as heart disease, emphysema, and diabetes (Daly, 1990). Delays in seeking health care, poverty, and the effects of stressful living conditions contribute to poor health.

Lehman et al. (1995) found that homelessness is associated with poorer subjective quality of life among persons with SPMI. Homeless subjects reported less satisfaction with their living situation, finances, daily activities, and social relations than domiciled persons with severe psychiatric disorders. The researchers noted the strong relationship between quality of life and contact with family and friends, indicating the high degree of social disruption associated with homelessness for persons with SPMI. They recommended interventions to assist these individuals expand their social support networks, including stable housing, basic support services, and treatment to reduce symptomatology that interferes with interpersonal relations.

The findings by Lam and Rosenheck (2000) supported these recommendations. They assessed the factors related to changes on the quality of life measure for homeless individuals receiving ICM services. At the 12-month follow-up, improved quality of life was associated with reductions in symptomatology and substance abuse, fewer days of homelessness, and increased social support.

Forty-two percent of homeless people in Toronto report they have no one to rely on in their lives (Mental Health Policy Research Group, 1998). Symptomatology precipitates disruptions in social relationships and, in many cases, leads to extreme social isolation (Tolomiczenko & Goering, 1998). Scarce instrumental supports from family or friends contribute to difficulties in attaining and maintaining housing (Carling, 1990). In a qualitative study, respondents with SPMI reported they became homeless because they lacked social supports after a relapse of their psychiatric illness. Without such support, they had been discharged from hospital directly to a shelter (Mental Health Policy Research Group, 1998). In general, research has found that persons with SPMI have a smaller social network than other homeless individuals and the general population

(Goering et al., 1992; Solarz & Bogat, 1990). In addition, the social networks of homeless persons with SPMI appear to become even smaller the longer they remain homeless (Toro et al., 1999).

In the 1980s, mental health care providers began to recognize the need to address the issues of housing and support as well as treatment in order to promote community tenure. It was commonly believed that many individuals with serious mental health issues were unable to live independently (Hurlburt et al., 1996). Alternative housing models were developed, combining treatment, support, and living needs within congregate residential programs. Some of these residential models include regulated boarding homes, nursing homes, or special care homes (Carling, 1993). These facilities have come under increasing criticism for their negative characteristics (Trainor et al., 1993; Tsemberis & Eisenberg, 2000). Many are for-profit, large-scale institutional settings that lack rehabilitation services or daily activity programming to promote skills training and an active lifestyle. Though residents have been found to adapt poorly in custodial settings, they have become the dominant form of housing for persons with SPMI in Canada and the United States (Castaneda & Sommer, 1986; Trainor et al., 1993).

A growing body of evidence describes consumers' preferences in the areas of housing and support services. Early studies referred to the general choice of custodial care or independent living and reported a widespread preference for independence (Elliott et al., 1990; Goering et al., 1990). Schutt and Goldfinger (1996) explored the reasons for this preference. Eighty-seven percent of the study sample of homeless persons with SPMI reported a preference for an independent apartment over living with a large group.

Seventy-eight percent chose an apartment over living with a small group. The majority did not wish to be segregated in residences for the mentally ill, which they perceived as stigmatizing. Though they expressed a strong desire for independent settings, most homeless respondents indicated the need for ongoing, flexible case management support to assist with problems in daily living.

Hurlburt et al. (1996) conducted a randomized controlled trial to evaluate the effectiveness of independent housing programs for homeless persons with SPMI. They found that, regardless of clinical diagnosis, participants could maintain such housing in the community with case management support. Persons with schizophrenia, bipolar disorder, and major depression all achieved successful outcomes in supported housing. They advised service providers to "seriously consider supported housing even for individuals with the most severe and stigmatizing mental health problems" (pg. 735).

Many experts now regard the supported housing approach as appropriate for most individuals with SPMI. Governmental agencies and professional organizations in Canada have recognized this housing model as an evidence-based practice (Health Systems Research Unit, 1997a; Ontario Ministry of Health and Long-Term Care, 1999). Though most people with severe and persistent illness can live independently with support, staffed community residential housing continues to be recommended for those who need and want more intensive support or supervision. In the Schutt and Goldfinger study (1996), 13% preferred living with a large group and 22% wanted to live with a small group, rather than live independently in an apartment. Varied types of housing are needed to meet the heterogeneous needs and preferences of this diverse consumer group.

CHAPTER III

CONCURRENT DISORDERS AND HOUSING STABILITY

Clinicians did not recognize the problems associated with substance use for persons with SPMI until the early 1980s (Drake et al., 1996). Mental health and substance abuse treatment providers began to note a group of young people with serious mental health issues whose disruptive behaviours created management difficulties in the community. Substance use was identified as one of the factors potentially related to their treatment resistance and negative outcomes. By the mid-1980s, service providers and researchers more clearly understood that the use of substances was not a manifestation of psychiatric illness, but a separate disorder. According to researchers Osher and Drake (1996), concurrent disorders existed before the 1980s but their visibility increased in treatment settings due to a number of factors:

> A generation of individuals with severe mental illnesses [was] no longer institutionalized as a way of providing mental health care and were instead part of a society with permissive attitudes toward drug utilization;... and the American Psychiatric Association's (1980) criteria in the DSM-III allowed for the identification of multiple Axis I disorders and legitimized the notion of co-occurring disorders (pg. 7).

Community-based mental health programs were developed to meet the needs of long-term patients reentering society during the large-scale deinstitutionalization of psychiatric hospitals. Traditional services lacked the requisite resources and expertise to accommodate the special needs of this new clientele.

Substance abuse and mental health programs in Canada and the United States evolved as separate and parallel treatment systems to respond to single, not co-occurring, disorders (Health Canada, 2001; Substance Abuse and Mental Health Services Administration, 2002). As a result, persons with concurrent disorders are rarely engaged in integrated rehabilitation programs that deliver consistent and coordinated treatment for both areas of illness. Dropout rates from non-integrated programs can run as high as 60%, indicating low accessibility and acceptability of these services (Galanter et al., 1988; Health Canada, 2001). Poor coordination between services across the mental health and substance abuse systems continues to create barriers to effective care for this population.

In the current era of fiscal restraint, programs in both systems are encouraged to narrowly define their priority populations in order to target scarce resources to specific treatment needs (Osher & Drake, 1996). System fragmentation can lead to two forms of "system denial" for clients presenting with concurrent disorders (Ridgely et al., 1990: 126). They may receive services in one system addressing a single disability, or be denied service because their needs appear better met in the other treatment system. Commonly, these consumers use resources from both the mental health and substance abuse streams but benefit from neither (Nuttbrock et al., 1998). Within the current system structure, persons with concurrent disorders have "one diagnosis too many" (Drake et al., 1996:45).

Traditional treatment models have generally proven ineffective at altering the course of illness for the majority of these consumers (Drake et al., 1997). The most common result is failure of therapeutic engagement and relapse of substance use (Onken & Blaine, 1990). Though some benefit from the 12-step approach, medication, and therapy, many persons with concurrent disorders are treatment resistant. Owen et al. (1996) found that subjects with schizophrenia and a co-occurring substance use disorders were 8.1 times more likely to be non-compliant with medication than those without drug or alcohol dependence. Longitudinal studies have found that substance abuse fails to improve in the absence of specific concurrent disorder interventions (Bartels et al., 1995; Cuffel & Chase, 1994; Morse et al., 1992).

Many persons with substance use concurrent with SPMI are unwilling to participate in addiction programs. These consumers deny or fail to recognize the negative consequences of their substance use (Drake et al., 1998). Other clients may acknowledge difficulties in one area but not in both (Brady et al., 1996). Persons with SPMI have distinctly different patterns and consequences of substance use than other subgroups with addiction disorders (Mercer et al., 1998). Research indicates that moderate alcohol use by persons with schizophrenia can lead to psychiatric relapse and hospitalization (Drake et al., 1989). Substance use produces dysphoria, anxiety, insomnia, agitation, and psychotic exacerbation in clients with SPMI (Ho et al., 1999). Individuals with concurrent disorders are four times more likely to be admitted for acute inpatient psychiatric treatment and spend more days in hospital than persons with SPMI alone (Dickey & Azeni, 1996a).

Symptom exacerbation associated with substance use is only one of many reasons why people with concurrent disorders are hospitalized. Other important factors include housing instability and non-psychiatric problems related to substance use, such as drunk and disorderly conduct (Mueser et al., 1998a). In an Australian study, 38% of hospital admissions for a group of heavy users of inpatient services were precipitated by problems related to their housing over a three-year period (Kent & Yellowlees, 1994). These difficulties included disputes with other tenants; complaints by neighbours about disturbances of the peace or threatening behaviour; and problems with landlords concerning unpaid rent and property damage. Substance abuse was a common factor in housing crises leading to hospitalization. In approximately half of admissions, subjects had recently used drugs or alcohol. These researchers also noted the high rate of housing instability in this group. Over the course of the study, 18% experienced periods of homelessness. Frequent changes of residence also indicated the degree of housing instability experienced by many of these consumers. The number of address changes in three years ranged from zero to 22, with a mean ±SD of 3.9 ± 4.9 moves.

Dickey et al. (1996b) found that housing instability is significantly associated with hospitalization. In an 18-month study, they followed homeless persons with SPMI after they were housed. Nearly 80% of subjects had a co-occurring substance use disorder. Approximately 40% moved during the study period and had more inpatient admissions than those who remained in their original residence. Seventy-five percent of the people who moved spent some time homeless and another 25% moved to equivalent or better housing. Regardless of the quality of the new living situation, persons who moved experienced more acute psychiatric crises that required hospitalization. Both housing stability and substance use were associated with substantial differences in hospital admissions and crisis visits.

Hurlburt et al. (1996) found that substance use significantly decreased community tenure among homeless subjects with SPMI. All subjects were provided with supported housing at the beginning of this two-year randomized trial. Thirty four percent of participants with alcohol problems and 42% with drug abuse disorders had negative housing outcomes. Subjects with both alcohol and drug diagnoses were the least likely to achieve housing stability. More than half of this subgroup became homeless and never attained consistent housing in the community over the course of the investigation. The researchers identified an "urgent need" for effective treatment interventions to address co-morbidity in order to break the cycle of homelessness (pg. 736).

With growing evidence that traditional treatment strategies lead to negative outcomes, many researchers have recommended a new service approach combining mental health, substance abuse, and housing services at the clinical level (Drake et al., 1991; Minkoff, 1989; Morse et al., 1992). In 1993, the Center for Mental Health Services in the United States implemented a five-year demonstration project in 15 cities to encourage collaboration between agencies serving homeless persons with SPMI and co-occurring substance use disorders (Calloway & Morrissey, 1998). This *Access to Community Care and Effective Services*, or *ACCESS* program, identified five levels of service integration (Konrad, 1996; Randolph et al., 1997). "Coordination and cooperation" represents a lower level of agency integration that includes verbal agreements for client referrals and joint client case planning to eliminate duplication of services. "Full integration" is achieved when all services are provided within one agency under a single authority.

The *ACCESS* project demonstrated the challenges underlying systemic reform. Long-standing divisions between the different service streams created numerous obstacles to effective integration. Separate funding, administrative, and accountability arrangements limited the extent that agencies could merge services (Calloway &

Morrissey, 1998). Confusion among local project staff about how to create linkages resulted in modest efforts to overcome system-level barriers. According to Calloway and Morrisey (1998), "Such integration was seen as harder to initiate than originally envisioned" (pg. 1571). Although greater integration was achieved over the course of the project, most cooperation involved activities characterized by the lower end of the integration continuum.

Significant improvements in client housing outcomes occurred, however, even at sites with minimal integration between mental health and housing agencies (Rosenheck et al., 1998). All subjects in the study were assigned to ICM teams that assisted clients in obtaining access to housing and other community services. Rosenheck et al. (2002) concluded that ICM programs effectively integrated service delivery "from the bottom up," regardless of the operation of the local service system (pg. 964). Though ICM services proved to be a mediating factor in housing outcomes, the research literature on the *ACCESS* project does not indicate whether differences were found on the housing domain between persons with or without substance use disorders

Researchers found that availability of affordable housing at the *ACCESS* sites predicted housing outcomes (Rosenheck et al., 2001). Favourable local economic conditions, combined with a civic culture supportive of publicly funded low-cost housing programs, enhance the opportunities for homeless persons to attain stable housing. Structural analysts stress the contributing role that social, political, and economic policy changes have played in the growing problem of homelessness (Cohen & Thompson, 1992). Shortages of affordable housing in Canada and the United States, reductions in social welfare, high unemployment, and discrimination are factors more closely related to housing problems than disability (Carling, 1993). Though personal risk factors such as psychiatric symptoms and substance use can precipitate cycles of housing instability, societal conditions serve to perpetuate homelessness. Tolomiczenko and Goering (1998) compared these circumstances to a game of "musical chairs":

> As chairs become scarce, it is not too surprising to find, among those displaced, greater rates of personal, medical and social handicaps. At the same time, we should be aware of political forces that affect how the game is played and ultimately, whether it is fair to all. To reduce levels of homelessness, policy must reverse trends both in the number of chairs and the issues that make competition unfair to disadvantaged players (pg. 5).

Many persons with severe psychiatric disorders rely on limited disability incomes that reduce their housing options. Those who find independent housing typically live in low-income neighbourhoods with high rates of violence and illicit drug use (Carling, 1993). The stresses associated with poor living environments contribute to psychiatric relapse and eviction. Personal vulnerability and macro factors intertwine in the complex etiology of homelessness (Tolomiczenko & Goering, 1998).

The earliest attempts to address the needs of homeless persons with concurrent disorders incorporated integrated treatment within the context of congregate living. Two quasi-experimental studies examined the effectiveness of residential treatment programs on substance use outcomes. Blankertz and Cnaan (1992) compared two long-term integrated treatment facilities and found that the program offering all services in-house achieved greater substance use reduction. Subjects in the less integrated setting attended some mental health or drug and alcohol programs off-site. Nuttbrock et al. (1998) compared a highly structured therapeutic setting to a less restrictive community residence. Like Blankertz and Cnaan, these investigators found that greater integration in the therapeutic setting was more successful on this outcome measure. However, both studies had high dropout rates (50% and 86%, respectively), which impacted on the validity of their findings (Gonzalez & Rosenheck, 2002).

A recent five-year naturalistic study by Lipton et al. (2000) examined the relative effectiveness of different types of housing programs for homeless persons with concurrent disorders. They found that subjects were more likely to maintain community tenure in independent housing with flexible supports than in highly structured treatment-oriented settings. The high-intensity sites typically had high staffing levels and restrictive on-site policies, such as curfews and mandatory attendance at a structured day activity. The high dropout rate from these sites (63%) indicated the low acceptability of mandatory treatment within the context of consumer housing.

In an overview of integrated programs, Mercer et al. (1998) concluded that residential treatment programs are costly and appear ineffective for the majority of service users. Clients are more likely to have good outcomes when their housing needs and preferences for support are met. The researchers recommended a consumer-oriented practice approach that provides flexible integrated treatment and individual support services through outreach to clients in general housing programs.

Drake et al. (2001) identified specific evidence-based practices in integrated programs that have demonstrated good outcomes in controlled studies. Case management programs providing assertive community outreach and a comprehensive array of services have proven effective at engaging and retaining clients with concurrent disorders at a high rate. Through assertive outreach, clinicians assist clients with housing, dental and medical care, income support and entitlements, and other immediate needs early in the engagement process (Mercer et al., 1998). Homeless persons are typically most interested in meeting basic survival needs before they will engage in treatment-oriented interventions (Sheridan et al., 1993). A flexible, comprehensive client-centred approach builds the foundation of the therapeutic relationship, identified as a central factor in successful addiction treatment (Carey et al., 2000; Maisto et al., 1999). When practitioners fail to develop trusting relationships to sustain clients through the treatment process, noncompliance and attrition rates are high (Hellerstein et al., 1995).

Programs that successfully engage consumers in recovery-oriented interventions incorporate the additional elements of motivational interventions, the concept of stages of treatment, and a long-term perspective (Drake et al., 2001). Individual and group motivational interventions help clients explore their personal goals and ambivalence towards change (Mueser et al., 1998b). These persuasion strategies enable individuals to discover how the use of substances interferes with attaining their goals. Change occurs in a series of stages that differ in terms of the consumer's level of motivation and the interventions that are most likely to be effective at a particular point in the recovery process. Unless clients enter a program at an advanced stage, recovery tends to occur over years in the community, rather than weeks or months (Mercer-McFadden et al., 1997). Drake et al. (2001) found that individuals make greater advances through these series of stages in programs that provide consistent integrated treatment and counseling to clients on a long-term basis.

Harm reduction is another effective approach to behavioural change for persons with substance abuse problems (Marlatt & Roberts, 1998; Tsemberis & Eisenberg, 2000), now recognized in Ontario as an evidence-based practice (Ontario Substance Abuse Bureau, 1999). Harm reduction emerged as a motivational alternative to traditional abstinence-based treatment, to meet the needs of many consumers unable or unwilling to set abstinence as a goal. Clients are encouraged to reduce harmful behaviours associated with substance abuse, without expectations of sobriety (Tsemberis & Eisenberg, 2000).

Findings in the recent study by Gonzalez and Rosenheck (2002) emphasized the need for appropriate motivational strategies for the homeless subgroup with concurrent disorders. Subjects were assessed at baseline regarding their perceived need for substance abuse services. Individuals indicating a greater need for treatment accessed more addiction services and showed greater improvement on clinical outcomes in 12-months than less motivated clients. However, co-occurring substance use disorders were correlated with a poorer prognosis on all outcome measures when compared to subjects with SPMI alone, regardless of progress towards recovery.

At the baseline assessment, individuals with co-morbidity between SPMI and substance use were found to be markedly more disadvantaged than their homeless counterparts without alcohol or drug disorders. They had spent more days homeless and reported a lower subjective quality of life. Symptomatology scores were higher, particularly on measures of psychosis and depression. Although this study makes evident the severe problems and poorer prognosis of homeless persons with concurrent disorders, the investigators found that motivation to change substance use patterns strongly predicted improvements in a broad range of outcome domains, including social support, psychiatric symptoms, and subjective quality of life. They recommended motivational interventions to facilitate the change process and improve functional and clinical outcomes for this population.

Studies show that homeless persons with concurrent disorders are more highly motivated to engage in treatment after securing stable housing (Dickey et al, 1996; Mercer et al., 1998; Tsemberis & Eisenberg, 2000). Housing stability allows the individual to return to a level of functioning needed to change substance use behaviors. The New York State Office of Mental Health (2001) has advocated this approach, "Once housed, people feel safe, secure and in control of their lives. They can then begin to participate in their recovery and begin to think about work, treatment and being members of a community" (pg.1).

A non-experimental study (Bebout et al., 1997) examined the impact of integrated treatment on the housing stability of homeless subjects with concurrent disorders. All subjects received supported housing at the beginning of the 18-month study. Fifty-two percent of participants were able to achieve housing stability with the support of an integrated ICM program. The investigators found that progress towards substance abuse recovery strongly mediated housing stability. Subjects who did not engage in treatment remained at high risk of residential instability and further homelessness.

Housing stability appeared to lead to improvements on the subjective quality of life outcome measure. Participants in stable housing rated their quality of life significantly higher compared to those in unstable housing on six of the 12 subscales in the Quality of Life Interview (QOLI: Lehman, 1988). Subjects expressed greater satisfaction in such areas as finances, housing, and leisure activities. However, increased housing stability appeared to have no impact on social networks, as measured by the QOLI scale.

The limited number of controlled studies on the effects of integrated treatment demonstrates that persons with concurrent disorders can be engaged in treatment and make progress towards recovery (Mueser et al., 2001). Research supports the effectiveness of specialized intensive case management programs that incorporate integrated treatment and assertive outreach (Drake & Noordsy, 1994; Jerrell & Ridgely, 1995). Studies indicate that traditional treatment approaches achieve less than 5% sustained remission per year in subjects with co-morbid SPMI and substance use disorders (Mueser et al., 1998b). Integrated programs have demonstrated greater success, with 10 to 20% remissions annually in this population.

Recently, experts in the concurrent disorders field recognized integrated treatment as an evidence-based practice (Drake et al., 2001; Minkoff, 2001). They recommend full integration within a single program to deliver a consistent message to clients about the functional relationship between their co-occurring illnesses. Evidence supports the greater effectiveness of this level of integration as the same clinician, or team of clinicians, are able to address both disorders at the same time (Drake et al., 1998; Ho et al., 1999; Marlatt & Roberts, 1998). According to Mueser et al. (1998b), "It should be clear that integration does not mean that two agencies or programs merely agree to collaborate" (pg. 131).

CHAPTER IV

INTENSIVE CASE MANAGEMENT

Since the policy shift to community-based care in the 1960s, a number of case management models have emerged to assist individuals with mental illness access and coordinate mental health services (Baronet & Gerber, 1998; Mueser et al., 2001). Outpatient clinics, day centres, and mental health care agencies were seen to be losing touch with patients, resulting in episodic treatment that contributed to relapse and rehospitalization (Melzer et al., 1991; Wasylenki et al., 1992). The need to improve continuity of care led to the development of case management as a new service function. The basic duties of the role include facilitating communication between the client and health care professionals, and coordinating various services into an individualized program best suited to the client's needs (Mueser et al., 1998a).

In the earliest form of case management, the broker service model, the case manager does not provide direct clinical services to clients, but rather makes referrals and coordinates the care provided by other professionals (Mueser et al., 1998a). With large caseloads, case managers have infrequent contact with clients, averaging one meeting every three weeks (Baronet & Gerber, 1998). In a study of the brokerage model, Franklin et al. (1987) found that subjects who received this service were twice as likely to be hospitalized as the control group who had standard community care. The client-staff ratio in this study was 60:1.

In two reviews of the case management research literature, caseload size was found to have an impact on client outcomes (Gorey et al., 1998; Rapp, 1998). According to Rapp (1998), programs were ineffective in every reviewed study that exceeded a 20:1 client-staff ratio. Lower caseloads allow a higher intensity of case management service. Rife et al. (1991) found that the frequency of contacts with homeless persons with SPMI strongly predicted engagement in case management services. Lower caseloads have also been found to be more effective in the areas of client functioning and quality of life (Gorey et al., 1998).

Quinlivan and colleagues (1995) found a strong inverse relationship between the intensity of case management contact and hospitalization. Another study investigating this association found that the most effective services averaged 11 contacts per month (Dietzen & Bond, 1993). Six monthly contacts produced minimal effect. Number of contacts, rather than the hours of contact, was significantly related to hospital outcomes (McGrew et al., 1994). Rapp (1998) noted that case management characteristics may be a mitigating factor in client outcomes. Brokerage case management with small caseloads and frequent client contact was no more effective than standard community care (Hornstra et al., 1993). This study suggests that the process variables of contact frequency and quality are both related to client outcomes.

Later case management models expanded the skill-set and responsibilities of the role in recognition of the fact that effective case managers must also provide direct clinical services (Mueser et al., 1998a). In the intensive case management model (ICM), case managers directly deliver a variety of clinical, rehabilitation, and social services but broker some areas of care to other providers. Increased intensity of case management services is a key feature of this model, designed to meet the specialized needs of high service users in order to minimize or avoid recidivism (Health Systems Research Unit, 1997b). Caseloads are reduced to allow assertive outreach and weekly client contact (Baronet & Gerber, 1998). As ICM does not take a formal team approach, case managers assume primary responsibility for individual caseloads, although the supervisor or other team members often act as backup (Rapp, 1998; Teague et al., 1998). Staff meetings are typically held once or twice per week for the purpose of problem solving, information sharing, and support to team members.

CHAPTER V

INTENSIVE CASE MANAGEMENT AND SPMI

The most recent reviews of the research literature comparing ICM to standard community care (SCM) were both published in 1998 (Baronet & Gerber, 1998; Mueser et al., 1998a). Although Mueser et al. (1998) de-emphasize the distinction between ICM and ACT in their analysis, they provide detailed tables of the treatment effects of each model, allowing an independent assessment of ICM outcomes. Later reviews compare ACT to broad categories of case management without distinguishing between ICM and other models (e.g. Bedell et al., 2000; Latimer, 1999; Ziguras & Stuart, 2000). One review (Bedell et al., 2000) grouped ICM with expanded broker, family case management, personal strengths, rehabilitation, and clinical case management models under the "hybrid" case management category (pg. 180).

Overall, 26 controlled and non-experimental studies were evaluated in the two reviews, published between 1988 and 1997. Though the SCM control condition is diverse in these studies, many describe some form of brokered case management (Baronet & Gerber, 1998). For persons with SPMI, ICM demonstrated a positive impact on housing status, hospitalization, and social adjustment but had little effect on symptomatology and quality of life.

Non-experimental studies provided the majority of evidence for the positive outcomes associated with the ICM model. Pre-post test designs without a control group provide longitudinal comparisons, but are unable to account for change occurring over time that may result from factors unrelated to the intervention (Ziguras & Stuart, 2000). Further analysis of the studies employing controlled experimental and quasi-experimental designs resulted in inconclusive findings for ICM on all outcome measures.

Baronet and Gerber (1998) found that improvements in social adjustment and housing status appeared to be related to rehabilitation services. Programs that emphasized social and instrumental skills training consistently achieved better results on these community adjustment indicators. Subjects in one study (Jerrell & Ridgely, 1995) received behavioural skills training from an outpatient program. At 18-months, participants with concurrent disorders achieved significantly higher psychosocial functioning than clients receiving care from an ICM program without social rehabilitation services. Baronet and Gerber (1998) hypothesized that rehabilitation services provided by some ICM teams in the reviewed studies were associated with improvements in housing stability and social functioning, rather than a general effect of ICM treatment.

Social functioning may also influence quality of life (Baronet & Gerber, 1998). Lehman et al. (1993), for example, showed that programs providing social rehabilitation services were more likely to impact on the quality of life domain. Mueser et al. (1998a) drew a different conclusion from the findings. In their analysis, quality of life appeared to be associated with hospitalization and housing stability rather than social adjustment. ICM programs that were effective on the quality of life domain consistently achieved favourable outcomes on one or both of these variables (Shern et al., 1996; Surles et al., 1992). This interpretation is consistent with findings from the ICM study by Bebout et al.

(1997) showing higher quality of life ratings for persons in stable housing compared to subjects who were homeless or living in a poor residential situation.

The lack of clear support for decreased symptom severity is an unexpected result in the ICM research literature, according to Mueser et al. (1998a). ICM case managers help clients with daily stressors in the community, and monitor symptoms and medication compliance. Though these efforts can effectively stabilize symptomatology, they do not necessarily reduce symptom severity for persons with SPMI. The investigators speculated that further symptom reduction might be unattainable for individuals with the most debilitating psychiatric disorders. Different methodological approaches used across the studies, however, decreased the accuracy and sensitivity of a comparative analysis by reviewers to determine the reasons for variability in the findings (Baronet & Gerber, 1998; Mueser et al., 1998a). Studies used a variety of methods to operationalize the symptomatology variable, including self-report instruments and semi-structured interviews. Despite the limitations of methodological variability on report comparisons, Baronet and Gerber (1998) noted that different methods ensured "global coverage" of the variable (pg. 223).

Commonly the ICM research literature reported no difference between the experimental and control conditions on outcome measures. Reviewers identified numerous methodological problems that can lead to inconclusive findings (Marshall & Lockwood, 1998; Baronet & Gerber, 1998; Mueser et al., 1998a). These include unreliable assessment instruments, high attrition rates, and the lack of rigor in study designs. Small sample sizes, baseline non-equivalence between experimental and control groups, and varied subject characteristics are additional limitations found in the ICM literature.

Errors or inconsistencies in methodology may also account for some negative findings in the research (Mueser et al., 1998a). The subjects in one controlled study (Curtis et al., 1992) were low service users, with less than three hospitalizations in the past two years. Individuals receiving ICM services were more likely to be hospitalized than the control group, suggesting that this model may be ineffective for persons with less debilitating mental health problems (Mueser et al., 1998a). ICM was developed specifically for high service users with SPMI, and the negative findings in this study may be explained by the sampling method.

Most studies in the ICM literature provide minimal descriptions of the services rendered to clients, increasing the probability that reviewers assigned programs to the wrong case management model (Baronet and Gerber, 1998). Discrepancies between reviews are common and may confound the validity and reliability of their comparative analysis. Reviewers described the experimental treatment condition in the study by Hornstra et al. (1993) alternatively as brokerage (Rapp, 1998), ICM (Baronet & Gerber, 1998), and ACT (Mueser et al., 1998a). The researchers in this study provided limited information about the program's structure and characteristics. Ontario guidelines on best practices in mental health research advise investigators to "clearly define and describe the nature of the experimental interventions including all program elements" (Health Systems Research Unit, 1997b: 15). Complete information increases the accuracy of model classification and allows reviewers to identify program elements in comparative analyses that appear to produce favourable outcomes for specific populations.

ICM evolved as a set of services rather than as a specific model delineating key program components (Baronet & Gerber, 1998). The lack of clearly defined elements leads to ambiguity (Mueser et al., 2001). The maximum caseload size for ICM in one review was defined as 20:1 (Baronet & Gerber, 1998), whereas another set the maximum at 10 clients per case manager for studies included in this category (Mueser et al., 1998a). Individualized caseloads are typically characteristic of the ICM model, yet Mueser et al. (1998a) described some research reports, such as the study by Aberg-Wistedt et al. (1995), as ICM despite the fact that case managers shared responsibility for clients. The lack of explicit model criteria and wide variation in program implementation in the reports contribute to inconsistencies between ICM reviews. Difficulties arise because programs typically include elements from different models that blur discrete boundaries and complicate the classification process.

To remedy this problem, researchers have begun to devise fidelity scales based on the ACT model to describe program adherence to defined model specifications (McGrew et al., 1994; Teague et al., 1998). However, these scales provide no cut-off point to distinguish between ICM and other forms of case management (Marshall & Lockwood, 1998). As a result, researchers using the same fidelity scale reached different conclusions about the type of case management provided to subjects in the ACCESS project. One group of investigators (Rosenheck et al., 1998) found that the average fidelity score across the 18 sites met ACT standards. Johnsen and colleagues (1999) described the case management services as ICM because the programs did not offer time-unlimited services, one of the central features of the ACT model.

CHAPTER VI

INTENSIVE CASE MANAGEMENT AND CONCURRENT DISORDERS

Ten studies in the research literature reviews examined the effectiveness of ICM for persons with concurrent disorders. ICM achieved mixed results on all outcome measures except hospitalization, which showed improvement only in the non-experimental reports.

Two studies reported using randomized controlled designs (Lehman et al., 1993; Solomon & Draine, 1995). Studies by Drake et al. (1997) and Jerrell and Ridgely (1995) described quasi-experimental matched control designs with no random assignment. Six non-experimental studies employed a within subject pre-post design (Durrell et al., 1993; Fraser, cited in Mueser et al., 1998a; Johnsen et al., cited in Mueser et al., 1998a; Johnson, cited in Mueser et al., 1998a; Surles, 1992; Tennessee Department of Mental Health and Mental Retardation, cited in Mueser et al., 1998a). Relatively few controlled studies have addressed the issue of substance abuse, according to Mueser et al. (1998a), because of the recent recognition of the problems associated with this disorder. The majority of investigations are demonstration or pilot projects using non-experimental designs to test innovative interventions and evaluation methodologies (Drake et al., 2001).

Two studies looked at ICM and housing outcomes among homeless subjects with concurrent disorders. In a randomized trial, Solomon and Draine (1995) showed no difference between groups of recently released jail inmates on all outcome measures, including homelessness and substance use. The ICM and SCM programs did not provide integrated treatment to address drug and alcohol addictions. The high attrition rate (53%) across both groups impacted on the validity of these findings.

Using a quasi-experimental design, Drake et al. (1997) found that an ICM team employing an integrated treatment approach for co-occurring disorders increased the housing stability of homeless persons in an urban setting. The integrated program retained participants in treatment at a higher rate than the non-integrated brokerage service (11.4 and 20.3% attrition, respectively). Though both groups made improvements, those receiving integrated ICM treatment showed greater gains in housing stability, substance abuse recovery, quality of life, and social support.

Two additional ICM studies examined the effectiveness of ICM for homeless individuals with SPMI without co-occurring substance dependence (Shern et al., cited in Mueser et al., 1998a; Wasylenki et al., 1993). These studies demonstrated substantial improvements on most variables, including housing stability. ICM produced no meaningful difference on hospitalization in the one study that included this outcome measure (Shern et al., cited in Mueser et al., 1998a). In a Toronto-based non-experimental study, Wasylenki et al. (1993) found that homeless persons receiving ICM services achieved housing stability, reductions in symptomatology, and increased social networks and level of social functioning at the nine month follow-up.

The search for research on concurrent disorders and homelessness resulted in four additional studies evaluating the ICM approach. These studies reported using randomized controlled designs (Dickey & Azeni, 1996a; Goldfinger et al., 1999; Havassy et al., 2000; Hurlburt et al., 1996).

All subjects in two studies received non-integrated ICM services, regardless of whether they were in the experimental or control groups (Dickey & Azeni, 1996a; Goldfinger et al., 1999). The independent variable was housing type, to determine which housing interventions could successfully stabilize homeless persons with SPMI in the community. These investigators found that homeless subjects without co-occurring substance use disorders could achieve residential stability with ICM support. However, the findings in both studies suggested the lower likelihood of community tenure for subjects who abuse substances. Dickey and Azeni (1996a) recommended an integrated treatment approach for this population to improve housing outcomes.

In another study (Hurlburt et al., 1996), subjects were randomly assigned to four experimental conditions to explore the impact of different case management models and housing types on the housing status of homeless persons with SPMI. ICM and a less intensive form of case management were compared, with maximum caseloads of 22 and 40 clients, respectively. Case managers on the ICM team had individual caseloads, held daily staff meetings, and were available to clients 24-hours a day, seven day a week. The researchers found no relationship between the type of case management and housing tenure, suggesting that a less costly form of assertive case management may be equally effective at providing housing support to homeless persons with SPMI and no co-morbidity. Subjects who attained high quality independent apartments were more likely to remain domiciled over the course of the two-year study than participants in substandard or less independent settings.

Neither case management team provided integrated treatment to address the substance use disorders diagnosed in more than half of the participants (53%). Regardless of housing type or case management intensity, the subjects with concurrent disorders were at significantly greater risk of homelessness, hospitalization, and incarceration. The researchers concluded that supported housing programs will be much less successful at stabilizing this population in the community unless "special attention is given to these problems" (pg. 736).

Havassy et al. (2000) compared the effectiveness of ICM to a hospital-based brokerage case management program for high service users with SPMI. These programs did not provide integrated substance abuse services for the large number of subjects (53%) with concurrent disorders. Though ICM significantly reduced hospitalizations for persons with SPMI alone, substance use was associated with negative outcomes in all domains, regardless of the service model. The researchers recommended integrating substance abuse treatment in case management programs to increase intervention effectiveness. The research literature supports this approach but is based entirely on evidence from descriptive or quasi-experimental studies. These investigators identified the need for clinical trials to definitively demonstrate the association between change and the integrated treatment condition.

CHAPTER VII

ASSERTIVE COMMUNITY TREATMENT AND SPMI

Stein and Test (1980) designed the Program for Assertive Community Treatment model (PACT) in the 1970s as a specialized, comprehensive treatment approach for high service users with a SPMI diagnosis (Mueser et al., 1998a). These researchers clearly formulated the model to include a specific set of core elements, regarded as critical to its effectiveness (Test & Stein, 1976). Like ICM, ACT delivers the majority of services to clients in their natural living environments through assertive outreach (Mueser et al., 2001). A low client-staff ratio of 10:1 allows a higher intensity of service contacts than ICM, averaging four client meetings per week on high fidelity ACT teams (Bond et al., 2001; Teague et al., 1998). ACT case managers provide 24-hour coverage, seven days per week, for quick response to client emergencies (Bond et al., 2001). Teams are comprised of mental health professionals from different disciplines, including psychiatrists, nurses, social workers, and rehabilitation counselors (Mueser et al., 2001). This multi-disciplinary staff delivers comprehensive care directly to clients, rather than referring services to other providers. ACT emphasizes shared responsibility by all case managers for the team's clients rather than individual caseloads. The entire team meets daily to discuss clients and plan treatment and rehabilitation interventions. This unique team approach is a key feature distinguishing ACT from other case management models.

Stein and Test (1980) conducted the first controlled study comparing ACT to standard community care. Their results demonstrated the model's superior effects on hospitalization, symptomatology, housing stability, medication compliance, and quality of life. ACT proved to be more economical than standard care by significantly decreasing the use of costly acute psychiatric services. Since this initial success, ACT has been replicated widely across the United States. The model was first introduced in Ontario in 1990 and by 2002, nearly 60 teams were established in the province (Provincial Auditor of Ontario, 2002). This community support treatment program is now recognized in Canada and the United States as an evidence-based best practice for persons with SPMI (Health Systems Research Unit, 1997a; Lehman & Steinwachs, 1998).

ACT is the most extensively researched case management model, with more than 25 randomized controlled trials evaluating its effectiveness (Mueser et al., 2001). The majority of these investigations target domiciled persons with SPMI in urban American settings. Approximately 20 reviews have been published on the research literature between 1990 and 2000, comparing ACT to standard care. The control condition varies between outpatient care with little follow-up to other forms of case management that differ from the ACT model (Health Systems Research Unit, 1997b).

ACT consistently demonstrates superior outcomes on hospitalization for persons with SPMI. High fidelity ACT programs reduce inpatient utilization by 58% compared to other case management models over one year (Latimer, 1999). This figure increases to 78% when the control condition is not case management, but a traditional form of outpatient clinic care. Low fidelity ACT studies also demonstrate better results than these alternatives, though the percentages are reduced to 35 and 55%, respectively.

ACT also achieved strong results in housing stability and independent living (Latimer, 1999, Mueser et al., 1998a). Eighty-eight percent of the studies reporting on this measure demonstrated favourable outcomes, usually to a significant degree (Latimer, 1999). In a meta-analysis of the ACT model, Marshall and Lockwood (1998) found a significant and robust effect over standard care on the housing domain. These researchers restricted their quantitative review to randomized controlled studies employing assessment instruments previously reported in a peer-reviewed journal. Only one study comparing ACT to another type of case management on housing outcomes met this standard (Morse et al., 1997), and showed significant effects for ACT over brokerage services. The Marshall and Lockwood review was conducted as part of the Cochrane Collaboration, widely regarded as an authoritative source of information on the effectiveness of health interventions (Ziguras & Stuart, 2000).

The majority of reviewers found no significant difference between ACT and non-ACT case management models on social functioning, symptomatology, and quality of life. Mueser et al. (1998a) conducted a traditional qualitative narrative review in which they compared the number of studies finding positive or negative results and summarized overall trends (Ziguras & Stuart, 2000). They concluded from the preponderance of null-findings on social adjustment that ACT and other case management models have little effect for clients in this area.

Ziguras and Stuart (2000) combined study results using quantitative meta-analytic methods and found that ACT and non-ACT models, in fact, improve social adjustment in the majority of reports. The similar effectiveness of experimental and control treatment produces inconclusive results. Case management programs that provide direct clinical care and emphasize the importance of the therapeutic relationship positively impact on this outcome measure.

Studies suggest, however, that increases in the number of social contacts may be related more to professional support than to improvements in natural support networks. Researchers found that the mean size of the social networks of homeless subjects with SPMI nearly doubled in nine months of ICM treatment (Wasylenki et al., 1993). These contacts consisted primarily of service providers, as the ICM team concentrated on meeting basic needs by linking clients to housing, medical care, and other programs and services.

Calsyn et al. (1998) conducted a randomized controlled experiment comparing the effectiveness of ACT and SCM in improving social relationships of homeless individuals with SPMI. Clients assigned to ACT teams reported having more professionals in their social network than subjects receiving services from an outpatient clinic, drop-in centre, or brokerage case management program. The researchers found that ACT did not significantly increase the size of natural support networks.

A recent study (Calsyn & Winter, 2002) demonstrated a significant causal relationship between natural supports and days in stable housing. Though professional support also showed a positive effect on this variable, the trend was non-significant. In addition, social support appears to buffer stress and increase quality of life (Lehman et al., 1995). A number of researchers recommend the incorporation of psychosocial rehabilitation (PSR) interventions by ACT programs to improve social relationships and related outcomes (Bond et al., 2001; Calsyn et al., 1998; Mueser et al., 1998a). According to Bond et al. (2001), "Social skills training and development of social networks, in addition to working with family members, have...been neglected despite ample support for these approaches" (pg. 151).

Research has not shown any main effects involving ACT treatment on quality of life, though few studies report results on this domain (Bedell et al., 2000). Burns and Santos (1995) suggested the possibility that unmeasured variables may account for the equivocal outcomes. Quality of life improvement may be limited by the severity of psychiatric impairment in persons with SPMI. The assessment instrument also may lack sensitivity to incremental rather than dramatic effects, particularly if study periods have short follow-ups. In addition, growing similarity between the experimental and control condition decreases the likelihood that ACT will show significantly superior effects over other case management models. Many case management programs have blended aspects of ACT into their existing services to assist clients in meeting their basic needs in the community. Though these modifications blur the distinctions between models, Solomon (1992) noted that comparison samples should reflect current practice. Model overlap allows researchers to more accurately identify the specific elements of ACT that prove effective over and above standard community care.

Studies commonly present quality of life results as a global score that may not convey the extent of differences found on individual measures of the scale (Baronet & Gerber, 1998). Some researchers have described significant change on subscale ratings though the overall subjective quality of life score showed no statistical difference (Bebout et al., 1997; Lehman et al., 1995). However, the Cochrane Collaboration regards partial scores from numerical scales to be an invalid indicator of overall functioning, according to the quality standards outlined in the *Cochrane Collaboration Handbook* (Mulrow & Oxman, 1997). This research group has developed criteria to assess data validity and demonstrated that numerical scales are prone to bias (Marshall & Lockwood, 1998). Data classified as poor quality in the Marshall and Lockwood review (1998) were four times more likely to be significant than those based on high quality observations. Partial scores represent incomplete data from a measure, creating methodological problems that limit the weight that can be placed on the results.

ACT and non-ACT programs have demonstrated inconsistent effects in the area of symptomatology for persons with SPMI (Bond et al., 2001; Ziguras & Stuart, 2000). Traditionally, studies have measured objective change on this variable, based on clinician ratings, and found that ACT and other case management models minimally impact symptom severity. Consumers have identified interventions that ameliorate the psychological distress associated with psychiatric symptoms as a priority service need (Dixon, 2000). Rehabilitation and support can facilitate recovery by reducing hopelessness and subjective distress, though objective measures of symptomatology may remain unchanged. (Torrey & Wyzik, 2000). Published reviews do not distinguish between objective and subjective symptomatology measures to assess the impact of ACT and non-ACT services on the lived experience of persons with SPMI.

A Canadian study (Lafave et al., 1996) compared ACT to hospital-based case management programs for subjects with SPMI. In this randomized controlled experiment, the researchers found a significant and robust effect for ACT on hospitalization. ACT also was associated with improved objective quality of life in the housing domain. No differences were found between groups on symptomatology or subjective measures of quality of life.

Sands and Cnaan (1994) evaluated the relative effectiveness of ACT and ICM models for persons with SPMI in a quasi-experimental study. They reported no significant difference between the experimental and control groups on hospital recidivism, residential stability, social support, and substance use. The ACT and ICM client-staff ratio was 5:1 and 20:1, respectively. ACT maintained weekly contact with clients, whereas the ICM subjects were seen every two weeks. The investigators noted the similar effectiveness of ICM and ACT and hypothesized that the less intensive services provided by ICM may be sufficient to achieve positive results for persons with SPMI. However, ACT was shown to be the more economical approach in a cost-benefit analysis. ACT achieved a greater, though non-significant, reduction in hospitalization and averaged annual savings of $15,000 per client compared to ICM.

CHAPTER VIII

ASSERTIVE COMMUNITY TREATMENT AND CONCURRENT DISORDERS

Seven studies in the literature reviews examine the efficacy of ACT for persons with concurrent disorders. Three investigations reported using true experimental designs (Morse et al., 1992; Morse et al., 1997; Lehman et al., 1997). Three studies employed a non-experimental pre-post design (Biddle., cited in Mueser et al., 1998a; Drake et al., 1993; Godley et al., 1994). The study by Meisler et al. (1997) used a naturalistic, retrospective design.

Studies demonstrated positive effects for ACT on hospitalization and residential stability outcomes. The majority of studies found no difference for ACT on symptomatology and social adjustment. Results on substance use and quality of life were mixed.

Morse et al. (1992) conducted the first controlled study of ACT that measured changes in substance use. Non-integrated ACT was no more effective at reducing drug or alcohol use than standard care provided by drop-in centres and outpatient mental health clinics in an urban setting. Furthermore, no differences were found on hospitalization and symptomatogy between programs. Latimer (1999) rated the ACT program in this study as medium fidelity to the model because the team did not include a psychiatrist on staff.

ACT significantly improved housing stability compared to the control groups at 12-months. However, high attrition (43%) in the experimental and control treatment programs compromised the validity of the findings. The sample characteristics may also have contributed to inconclusive results on the clinical outcomes, as less than one-third of subjects were diagnosed with severe psychiatric disorders.

In a randomized controlled study, Morse et al. (1997) compared a medium fidelity ACT program to broker case management in an urban setting. Sixty-six percent of the sample was diagnosed with a SPMI disorder. The researchers reported a dropout rate of less than 20% at the 18-month follow-up. ACT clients had fewer symptoms and averaged more days in stable housing than clients who received brokered case management. Both the experimental and control programs were non-integrated and produced no effect on the substance abuse outcome.

A third randomized controlled study in an urban area (Lehman et al., 1997) found that homeless subjects receiving high fidelity ACT services achieved significantly greater housing stability and reduced hospitalization than clients of an outpatient clinic providing no community outreach. Symptomatology, social adjustment, and quality of life showed no significant change.. Results showed no significant improvement in either program on the substance use outcome though 83% of subjects were successfully retained in treatment at one year. Neither treatment condition provided integrated substance use services.

An uncontrolled pilot study in rural New Hampshire collected baseline and follow-up data from eighteen clients with SPMI concurrent with an alcohol use disorder (Drake et al., 1993). This demonstration project investigated the effectiveness of integrated substance abuse and mental health treatment within an ACT program.

Integrated ACT services substantially reduced substance use, with more than half of the participants achieving stable remission in four years.

With growing research evidence that subjects with concurrent disorders fared no better with traditional ACT services than standard community care and improved with integrated treatment, some researchers suggested that substance abuse treatment be incorporated into the ACT model (Teague et al., 1995). The DACT fidelity scale modified the model to include substance abuse specialists as part of the multidisciplinary team (Bond et al., 2001). In addition, high fidelity ACT programs now are required to incorporate the principles of stages of change and provide group treatment services for clients with concurrent disorders (Teague et al., 1998).

A retrospective non-experimental case study (Meisler et al., 1997) provided support for integrated substance abuse services within the context of the ACT model. Sixty-seven homeless individuals with concurrent disorders were evaluated at baseline and at the four-year follow-up. The program was located in a small urban community, with a population of approximately 70,000. All study subjects were maintained in the program at the four-year assessment.

Nearly 90% of the clients achieved stable housing, with no difference between persons with or without sobriety. However, individuals who made progress towards recovery were more likely to attain independent housing. Persons with the most severe substance use problems remained at high risk of homelessness or incarceration, particularly if they were dependent on crack cocaine. Twenty-four percent achieved abstinence at the four-year assessment. The researchers concluded that integrated treatment can lead to substantial reductions in substance use in this population and sobriety is not a necessary condition for housing stability. However, the investigators noted that nearly 60% continued to have moderate or severe problems associated with substance use and recommended continued innovations in treatment approaches to meet the needs of persons that fail to respond to current best practice interventions.

The search for additional research on the ACT model and concurrent disorders resulted in three additional studies. One study reported using a matched control design with no random assignment (Tsemberis & Eisenberg, 2000). Drake et al. (1998) employed a randomized controlled design. The quasi-experimental evaluation conducted by McHugo et al. (1999) analyzed secondary data from the Drake et al. (1998) study.

A recent matched-control design study (Tsemberis & Eisenberg, 2000) examined the relative effectiveness of ACT and SCM on housing outcomes in New York City. The integrated ACT program used a harm reduction approach to drug use. Clients were immediately provided supported housing in independent apartments, regardless of the severity of their substance use or their stage of change. Half of the case managers on the team were consumers, to provide "a model of recovery for both clients and staff" (pg. 489). Clients receiving non-integrated SCM services could not obtain permanent housing until they participated in treatment and demonstrated stable remission. In the linear housing approach employed by the SCM programs, individuals progressed through a series of increasingly independent boarding and group homes until they were determined to be at a "housing ready" stage of treatment (pg. 492). At this point, they could attain their own apartment.

Eight-eight percent of homeless clients receiving integrated ACT services maintained stable housing in this five-year retrospective study, compared to 47% receiving standard community care. Though substance use substantially threatened community tenure, subjects with concurrent disorders in the experimental group achieved a higher rate of housing stability than the comparison sample. The researchers found the program model a more powerful predictor of housing retention than personal or clinical variables, including substance abuse. They recommended the combination of integrated ACT services and supported housing to effectively improve the residential stability of homeless persons with concurrent disorders.

Drake et al. (1998) randomly assigned 223 subjects diagnosed with concurrent disorders to ACT or ICM treatment in rural New Hampshire. ACT teams provided specialized integrated services, including concurrent disorders treatment groups, a stage-wise approach, and direct substance abuse treatment by team members. The experimental and control conditions were similar in the study, as the ICM programs also used a team approach, and case managers provided direct substance abuse treatment. The client-staff ratio on the ICM teams was 25:1 versus 12:1 on ACT. Due to higher caseloads, ICM programs brokered many services to other clinicians, including specialized substance abuse treatment.

The researchers found the mental health system in New Hampshire to be highly integrated. According to the five-point integration scale adopted by the *ACCESS* project, this system appears to have achieved the fourth level, described as "consolidation" (Konrad, 1996). At this level, different agencies are organized under a single authority in a multi-service centre, but continue to operate autonomously. This organizational structure promotes information sharing and collaboration among agencies.

The ICM teams in the study referred substance abuse treatment services to programs located within their own mental health centres. ICM clients received an equivalent or greater amount of treatment services than ACT clients due to the linkages established with non-ICM clinicians and programs. This intensive level of treatment and communication between service providers achieved similar results to the more integrated ACT programs on hospitalization, stable days in housing, and substance abuse remission. These findings support the hypothesis proposed by Havassy et al. (2000), that an appropriate level of integration may produce beneficial results, regardless of the case management model providing or coordinating the care.

The results on quality of life were mixed for both ACT and ICM. The researchers found that objective quality of life improved but showed no change on the subjective portion of the QOLI scale. They speculated that the QOLI instrument is insensitive to important changes that occur as persons with concurrent disorders progress towards recovery. According to the researchers, these individuals become less involved in social networks and other activities measured by the scale as they shift towards non-drug-related behaviours. The study by Meisler et al. (1997) supported this analysis in their description of the effects of social and cultural environment on the subjects with the most severe substance use disorders. The investigators found that severe substance users typically lived in neighbourhoods with high rates of illicit drug trafficking and associated with other people with substance dependencies. Subjects who progressed towards recovery often changed residence and social patterns in order to avoid situations that could trigger relapse.

McHugo et al. (1999) found that program fidelity to the ACT model is associated with positive client outcomes. In a secondary data analysis, the researchers compared the effectiveness of ACT for 87 subjects with concurrent disorders in rural New Hampshire. Based on rating criteria in the DACT fidelity scale, four ACT teams met high fidelity standards and three were classified as having low fidelity to the ACT model. The high fidelity teams contained more components of the integrated treatment model, such as the provision of concurrent disorder treatment groups.

High fidelity ACT showed greater reductions in drug and alcohol use and attained higher rates of remission than low fidelity ACT programs. No differences were found between the groups on hospitalization, symptomatology, housing, or quality of life outcomes. Clients improved on these measures under both treatment conditions. The investigators concluded that adherence to the core elements of the ACT model, including new criteria for integrated treatment, is associated with superior outcomes in the area of substance use for this population.

CHAPTER IX

LITERATURE REVIEW SUMMARY

Over the past decade, innovations in treatment approaches for concurrent disorders have become the subject of substantial research. Exploratory demonstration projects have provided support for the beneficial effects of integrated ICM and ACT treatment on housing stability and substance use outcomes. These uncontrolled studies indicated an apparent relationship between community tenure and progress towards recovery, particularly for severe substance users.

Studies employing a matched control design with no random assignment suggested that clients receiving integrated ICM and ACT services were retained at a higher rate and made greater gains than comparison samples receiving standard community care. These reports demonstrated a variety of positive outcomes in domains such as substance abuse, residential stability, quality of life, and social support.

Although the research methodologies in pre-post and quasi-experimental designs limit the reliability of the findings, growing evidence from these reports supports the efficacy of an integrated treatment strategy linking substance abuse and mental health services. Emerging research trends show that increased rates of stable remission and housing retention are strongly mediated by coordinated treatment for both areas of illness delivered concomitantly.

The majority of randomized controlled experiments have demonstrated the ineffectiveness of traditional treatment approaches for people with SPMI co-occurring with substance use disorders. Non-integrated ACT and ICM services have shown minimal impact on all outcome variables for this population. A comparative study of integrated ACT and ICM, conducted in a rural U.S. setting, found both models equally successful on measures of stable community days, hospitalization, psychiatric symptoms, and remission of substance abuse. Although the ICM programs in this study brokered some addiction services, close collaboration between agencies produced beneficial effects similar to those achieved by fully integrated ACT teams.

Mueser et al. (2001) observed that the service needs of persons with concurrent disorders are likely influenced by the characteristics of the setting in which they live. Large metropolitan centres typically have higher rates of cocaine-use disorders, poverty, and homelessness than rural areas. Studies have also found more severe symptomatology in persons with SPMI living in urban settings than those in rural communities (Chu et al., 1986; Davies et al., 1989). Though integrated ACT did not prove to be more effective than ICM in prosperous regions of rural New Hampshire, the relative effectiveness of these models has yet to be investigated in controlled studies set in densely populated urban areas (Mechanic, 1996). The ACT model's greater intensity of client contact and higher level of service integration may show stronger effects for more disadvantaged inner-city populations.

The research data on the service needs of persons with co-occurring SPMI and substance use emanates primarily from the United States. Little local empirical evidence is available to Canadian policymakers showing the effectiveness of ACT for this population in Canada's more highly developed universal health care system (Marshall &

Lockwood, 1998; Stuart & Arboleda-Florez, 2000). The advantages of ACT over less costly case management models have not been demonstrated outside of the U.S. (Marshall & Lockwood, 1998). According to commentators in the Canadian health care system, "Studies of ACT have been favourable in other settings but if ACT is going to be a direction for Ontario community health dollars, we need to understand about how it works in Ontario communities" (Community Mental Health Evaluation Initiative Project, 2001:2).

The purpose of this paper is to examine the housing outcomes of two forms of integrated mental health and substance abuse treatment for subjects with concurrent disorders in a poor inner-city area of Toronto, Canada. Both ACT and ICM programs integrate substance abuse and mental health treatment, but they differ in the degree to which the teams provide services directly. The fully integrated ACT team provides nearly all addiction services in-house, while the ICM team shares responsibility for some substance abuse treatment with other service providers.

Following previous research, it was hypothesized that *persons with co-morbidity between severe psychiatric and substance abuse disorders would have less housing stability compared to persons with SPMI alone (Hypothesis 1).* Moreover, it was expected that *improved community tenure and intensity of contact with service providers would mediate client outcomes on the self-report measures of social support, empowerment, quality of life, and symptom distress (Hypothesis 2).* Finally, it was hypothesized that *subjects in the fully integrated ACT program would experience greater housing stability than those receiving treatment from the ICM team (Hypothesis 3).*

CHAPTER X

METHODS

A. Overview and Setting of the Main Study

Data for this secondary analysis were drawn from a randomized clinical trial investigating the effectiveness of ACT and ICM programs for persons with SPMI in Toronto's inner-city. The study was one of six individual evaluation projects organized under the Community Mental Health Evaluation Initiative (CMHEI) to assess the efficacy of different types of community mental health models in Ontario (Dewa et al., 2002). The Ontario Ministry of Health and Long-Term Care awarded funding for this five-year longitudinal evaluation project to the Mental Health Policy Group, a coalition of three agencies including the Ontario Mental Health Foundation, Canadian Mental Health Association (Ontario Division), and Health Systems Research Unit. This consortium coordinated the projects and developed a common assessment protocol to allow comparisons of data across the sites.

Both case management programs under investigation in the Toronto project are components of a general hospital mental health service. St. Michael's Hospital is located in Southeast Toronto, a community characterized by high rates of poverty, unemployment, homelessness, substance use, and mental illness (Community Mental Health Evaluation Initiative Project Newsletter, 2001).

> The rate of hospital admissions for mental illness in Southeast Toronto is considerably higher than the average for the province of Ontario. In

> 1990/91, the provincial rate was 57.4 per 10,000, whereas in Southeast Toronto the rate for the same year was 83.3 per 10,000. Schizophrenia and affective disorders comprise more than half of all hospital admissions. Glazier et al (1995)...have shown that substance abuse is a very prevalent problem in Southeast Toronto and persons using drug and/or alcohol make up a large part of the shelter using and socially isolated inner city population. For Southeast Toronto as a whole, hospital admissions for substance abuse account for three percent of all hospital admissions with rates as high as eight percent in more disadvantaged neighbourhoods such as Moss Park and Regent Park. It should be noted that individuals with severe and persistent mental illnesses, many of whom inhabit shelters, group homes and boarding and rooming homes in Southeast Toronto, have a 40 to 50 percent prevalence of substance use disorders (Wasylenki, 1997: 2).

B. Procedures and Measures

Residents in the catchment area of St. Michael's Hospital were eligible for the study if they met the following criteria:

> - DSM IV Axis I Disorder (American Psychiatric Association, 1994) diagnosed in previous medical records and confirmed by the [research] psychiatrist. Diagnoses include schizophrenia, schizoaffective disorder, bipolar mood disorder, major depressive disorder, delusional disorder and psychotic disorder secondary to a generalized medical condition.
> - Age of at least 18 years in order to provide informed consent...
> - Persistent mental illness defined as an illness duration of at least five years.
> - Severe mental illness as defined by either two or more psychiatric hospitalizations in the past 18 months or more than 100 days in hospital in the past 18 months or more than nine visits to the crisis team or emergency rooms in the past 18 months (averaging one every two months).
> - Impaired psychosocial functioning as defined by a score of less than 60 on the Multnomah Community Ability Scale.
> - Capable of providing informed consent (Wasylenki, 1997: 10).

Exclusionary criteria included the following:

> - DSM IV Axis II Disorder only [Personality Disorder].

- Substance Use Disorder only.
- Developmental Disability.
- Evidence of potential danger to mental health workers.
- Neurological Impairment/Demential Diagnosis (Wasylenki, 1997: 10).

Participants were evaluated in a comprehensive interview at baseline and were re-interviewed nine and 18-months later. The final follow-up interview was conducted in January 2003. Research psychiatrists assessed psychiatric status using the Structured Clinical Interview for DSM-IV to verify the Axis I diagnosis (Robins et al., 1995). Collateral information and the clinical interview were considered in establishing a diagnosis.

At baseline, the structured interview included the demographic portion of the International Association of Psychosocial Rehabilitation Services (IAPSRS) Toolkit (Research Committee of the International Association of Psychosocial Rehabilitation Services, 1995). The baseline, nine and 18-month interviews included the following assessment instruments:

- Alcohol Use Scale (AUS) and Drug Use Scale (DUS)(Drake et al., 1990; Drake et al., 1996),
- Substance Abuse Treatment Scale (SATS) (McHugo et al., 1995),
- Homelessness Scale (Wasylenki et al., 1993),
- CMHEI Empowerment Measure (Rogers et al., 1997; Rosenberg, 1965),
- CMHEI Symptom Distress Measure (Derogatis & Cleary, 1977; Nguyen et al., 1983),

- Lehman Quality of Life Interview – Brief Version (Lehman, 1997),
- CMHEI Social Support Measure (Cultrona & Russell, 1987).

In addition to the tools outlined above, the following measures were used in the Toronto study but were not included in this secondary analysis:

- Brief Psychiatric Rating Scale (Overall & Gorham, 1962),
- Multnomah Community Ability Scale (Barker et al., 1994a; Barker et al., 1994b),
- Client Satisfaction Questionnaire (Larsen et al., 1979),
- Time-Line Follow-back Technique (Sobell et al., 1995).

C. Clinician Rating Scales

Substance use status: To supplement the substance abuse assessments, clinicians rated clients every nine months on three scales: the Alcohol Use Scale (AUS), the Drug Use Scale (DUS), and the Substance Abuse Treatment Scale (SATS).

The AUS and DUS are five-point scales based on the DSM-IV criteria for severity of disorder: 1 = abstinence, 2 = use without impairment, 3 = abuse, 4 = dependence, and 5 = dependence with institutionalization (Drake et al., 1995). Following DSM criteria, abuse is defined as substance use of at least one month that leads to recurring or persistent impairment and interference with social, occupational, residential, or physical functioning. Dependence describes a greater degree of addiction that causes the individual to withdraw from non-substance use activities, such as job training. A rating at the high end of the scale indicates severe use interfering with the client's ability to maintain him/herself in the community due to substance use. Drake et al (1989) have shown that clinician's ratings on the AUS and DUS for clients living in the community have high sensitivity (94%) and specificity (100%). Inter-rater reliabilities were found to be between .80 and .95.

The SATS is an eight-point scale that indicates the client's progress towards recovery, based on Osher and Kofoed's (1989) four-stage model of concurrent disorders. McHugo et al. (1995) found high inter-rater reliability for clinician ratings on the SATS ranging from .89 - .93 and good convergence with alcohol and drug use (.70).

The scale provides an assessment tool for clinicians to evaluate the current treatment stage associated with the substance use disorder in order to match appropriate interventions to the client's readiness for behavioural change (Wasylenki, 1997). In the engagement stage, the client must join with the clinician in a working alliance. With the development of a trusting relationship, motivational interventions encourage the client during the persuasion stage to recognize problems associated with continued substance use and set reduction or abstinence as a goal (Drake et al., 1998). The active treatment stage involves the individual's participation in reducing use to a less harmful level for longer periods of time until abstinence can be achieved. In the relapse prevention stage, the clinician continues to assist the recovery process by addressing other goals that can reinforce abstinence and maintaining the consumer's awareness of vulnerability to relapse.

Clinician Rating Scales increase the sensitivity of substance abuse screening by reducing reliance on subjects' disclosure through self-report or diagnostic interview procedures (Rosenberg et al., 1998). Goldfinger et al. (1996) found that the Structured Clinical Interview for DSM-IIIR had only 24% sensitivity with homeless persons with SPMI. Research has shown that discrepancies between self-report and clinician ratings of substance use disorders typically result from client non-disclosure rather than clinician error (Drake et al., 1990: Shaner et al., 1993). Rosenberg et al. (1998) noted that traditional criterion for substance abuse detection decreases diagnostic reliability by requiring a positive finding on both modes of assessment. These researchers recommended that alcohol or drug disorders be determined by either the Clinician Rating Scales or the Structured Clinical Interview for DSM-IV.

Subjects may be reluctant to acknowledge alcohol or drug use at the outset of a study, before a therapeutic relationship has been established with the service provider (Hurlburt et al., 1996). According to the "best practice" treatment standards established by Health Canada for concurrent disorders,

> Services which are providing support to a consumer for an extended period of time, such as an intensive case management program... will be able to monitor the situation over a longer period of time. Thus, screening need not only occur at intake into the service. The judgment of the caseworker can have a high predictive value as the consumer becomes better known and trust is established (2001: 29).

At the initial assessment, staff research interviewers in the Toronto study relied on self-report, collateral information from previous service providers, and clinical records to determine the baseline ratings on the Clinician Rating Scales (Higgins, personal communication, 2003). Hurlburt et al. (1996) recognized the likelihood that baseline data would be less reliable than clinician ratings at the first follow-up interview, after members of the treatment team had engaged with the client. To adjust for the problem of underreporting, these researchers classified participants as having a substance use disorder at the beginning of the study if they received ratings of substance abuse or dependence either at baseline or at the six-month follow-up. They found that, "Although this method did not completely address underreporting of substance use problems, it did identify some individuals who were not willing to report such problems at study entry" (pg. 732).

Based on recommendations by Rosenberg et al. (1998) and Hurlburt et al. (1996), the screening criterion in this analysis classified subjects with a substance use disorder if they received clinician ratings of abuse or dependence on the AUS or DUS at baseline or at the nine-month interview. In addition, active engagement in substance abuse treatment at baseline or the nine-month follow-up indicated the presence of a substance abuse or dependence disorder. For this purpose, the Substance Abuse Treatment Scale (SATS) was collapsed into two levels: ratings of one to four indicated little to no engagement in treatment, and ratings of five to nine denoted active treatment or relapse prevention. Positive findings on any Clinician Rating Scale or the Diagnostic Clinical Interview defined the presence of a co-occurring substance use problem for individuals in this sample. This broad detection strategy conforms to practice guidelines outlined in Health Canada's *Best practices: Concurrent mental health and substance use disorders* (2001). According to this document, evidence-based practice has demonstrated that "it is better to cast a wide net in the screening process and subsequently rule out a substance use disorder on the basis of further assessment" (pg. 30).

Housing status: Because of the poverty and high rates of homelessness in the inner-city community served by St. Michael's Hospital, researchers in the Toronto study anticipated that at least half of the study's participants would be homeless or underhoused (Wasylenki, 1997). The Homelessness Scale developed by Wasylenki et al. (1993) has demonstrated sensitivity on measures of housing type improvement in relation to case management interventions for a population with SPMI. The scale examines the client's residential situation on a variety of dimensions to discern change not only in type of housing, such as shelters or permanent housing, but also in housing stability represented by the number of moves in the previous nine months. Housing type is further analyzed to identify where the client resided the majority of time in that period and the adequacy of place of longest residence (Wasylenki, 1997).

For the purpose of this analysis, housing status at baseline and 18-months have been collapsed into three basic categories that describe the general housing situation of participants and provide the means to study relationships with experimental variables and important co-variates. Because one project goal was to help clients attain permanent housing over time, housing status during months 12 to 18 have been coded as stable, unstable, or homeless. This unique typology of housing outcomes was designed to describe the effects of substance use on community tenure.

Persons who achieved residential stability before month 18 were categorized as having stable housing. This category included those who were not currently homeless and had not lived primarily on the street or in a shelter/hostel in the previous nine months. It also included subjects who moved no more than once during this period, indicating general housing consistency. The stable housing category subsumes three subcategories: persons living in independent houses or apartments, those living in dependent settings with on-site staffing, and persons residing in institutional settings (jails or long-stay hospitals) as the main setting over the course of the previous nine months. The latter subcategory is classified under stable housing as no further information is provided by the data about housing status after institutional discharge or release.

The unstable housing category included persons who moved two or more times in the past nine months but avoided homelessness during this period. The incorporation of housing instability in the coding scheme takes into consideration temporal stability as an indicator of the subjects' residential situation. The final category comprised clients who were literally homeless. Persons in this group primarily lived in a shelter/hostel or on the streets during the previous nine months.

D. Self-Report Measures

Empowerment: Outcome measurements of empowerment assess services aimed at clients' long-term recovery and self-sufficiency, as distinguished from symptom stabilization (Barton, 1999). The CMHEI Empowerment Measure uses 16 items from the Empowerment Scale (Rogers et al., 1997) developed through a partnership between researchers and consumers (Community Mental Health Evaluation Initiative, 1999). The scale measures five areas: self-esteem, power, community activism, control of future, and righteous anger. In addition, the measure includes all items from the Rosenberg Self-Esteem Scale (RSE: Rosenberg, 1965).

Subjects are asked to respond to 23 statements on a four-point rating scale ranging from strongly agree to strongly disagree. These statements include, "I am usually confident about the decisions I make" and "I certainly feel useless most of the time" (Community Mental Health Evaluation Initiative, 1999: 4).

Studies have demonstrated the reliability and construct validity of the RSE scale for persons with SPMI (Arns & Linney, 1993; Morse et al., 1992; Van Dongen, 1996). The Rogers scale has also shown good reliability and validity (Rogers et al., 1997; Wowra & McCarter, 1999; Corrigan et al., 1999). Because the full Rogers scale was not utilized in the current multi-site study, "further work is needed to assess the properties of the CMHEI measure before scales can be defined and calculated" (Dewa & Durbin, 2003: 5).

CMHEI Symptom Distress Measure: The Symptom Distress Scale (SDS) is a self-report measure intended to reflect the degree to which psychiatric symptoms interfere with client functioning. Fifteen items from the SCL-90 are used to indicate dysphoria, demoralization and anxiety (Nguyen et al., 1983). A five-point scale measures the subject's level of distress in the past seven days, ranging from "not at all" to "extremely" (Dewa & Durbin, 2003).

"Although psychometric information is not yet available, the SDS is currently part of the MHSIP Consumer-Oriented Report Card implemented in a number of states, and the Ohio consumer outcomes system-wide assessment (Teague et al., 1997; Ohio Department of Mental Health, 1998)" (Dewa & Durbin, 2003: 4). An evaluation of the scale's reliability in the CMHEI multi-site study found high internal consistency (0.92) at both baseline and the nine-month follow-up (Dewa & Durbin, 2003).

Quality of Life: The Lehman Quality of Life Scale – Brief Version (QOL: Lehman, 1997) rates 11 self-report items on domains such as housing, safety, and daily activities. Subjective quality of life is measured on a seven-point delighted-terrible scale, with seven = delighted (Community Mental Health Evaluation Initiative, 2003). Questions include, "How do you feel about your life as a whole?" and "How do you feel about the living arrangements where you live?"

The QOL scale is widely used in the mental health field and has shown both construct validity and reliability (Lehman, 1992). This assessment tool

> provides important information about how persons in the target population are experiencing their current life circumstances (not just their health status) and permits some estimation about the priorities that they place upon these needs. Such information is vital for planning within service system areas for the psychiatric, medical, rehabilitation, and supportive services for these people (Lehman, 1997: 227).

CMHEI Social Support Measure: Six items from Cultrona and Russell's (1987) 24-item Social Provisions Scale examine the consumer's perception of the size and quality of available social supports. Two additional items were designed by CMHEI researchers to measure the quality of family relationships. Subjects are asked to respond to such statements as "There is no one I feel comfortable talking about problems with" on a four-point scale ranging from strongly agree to strongly disagree.

The Social Provisions Scale Abbreviated demonstrated good internal consistency at baseline (0.77) and the first follow-up (0.79) in a preliminary analysis of the data from the CMHEI multi-site study (Dewa & Durbin, 2003).

E. Sample Characteristics

Subjects were recruited between September 1998 and July 2001. A low intake rate ensured that programs could provide consistent and comprehensive services to clients, following the *Protocol for Assertive Community Treatment Fidelity Scale* (Teague et al., 1998). The hospital's review board approved the study's protocol and consent forms.

Referral sources included hospitals, shelters, case management and housing programs, probation officers, and physicians. Of the 346 potential subjects who were pre-screened for the study, 177 (51%) were assessed as eligible to receive the diagnostic interview. Of this group, 85 (48%) met criteria and were randomly assigned to ACT (N=40) or ICM (N=40). Five withdrew early in the study and were replaced before the nine-month follow-up. Reasons for non-acceptance at the pre-screening stage included incomplete referral information upon which to base an assessment, a history of violent behaviour unrelated to psychotic crises, or ongoing community treatment from other service providers.

Of the 92 non-selected eligible individuals, 15% were subsequently found to be incompetent to consent or did not meet diagnostic criteria, 25% moved or were lost to follow-up, 17% were referred to other case management programs, and 13% refused to participate. An additional 4% were excluded due to lack of fluency in either English or French. Because of intake rate restrictions, 26% were placed on the waiting list, with no further follow-up.

The sample of 85 subjects and 92 non-selected persons did not differ significantly in age, sex, diagnosis, or housing status at baseline. Similar proportions in the two groups were diagnosed with active alcohol or drug abuse or dependence. Without necessary informed consent, no further data was available by which to compare these groups.

Of the five subjects who did not complete the 18-month study, three were lost to follow-up, one moved out of the hospital's catchment area, and one refused to participate. Because these subjects were replaced, information collected at the baseline assessment has been treated as missing data in this analysis.

The baseline sample consisted of 59 men (74%) and 21 women (26%). The subjects were predominantly single (93.8%), had high school or higher education (65%), and were a mean of 39.9 years old (SD = 10.3). More than half (53.8%) of the sample had a poor housing situation at baseline, defined by either literal homelessness or residential instability determined by two or more moves in the past nine months, prior to entry in the study. Twelve individuals (15%) lived in a shelter or hostel and 9 (11.3%) were on the streets.

The most common psychiatric diagnoses identified by the research psychiatrists using the Structured Clinical Interview for DSM-IV were schizophrenia for 73% of study participants, schizoaffective disorder for 17.5%, and mood disorder for 7.1%. Thirty-five participants (44%) were identified through either the diagnostic interview or clinician ratings as having a co-occurring substance abuse or dependence disorder.

F. Interventions

Participants in the experimental group received integrated mental health treatment and substance abuse counseling services from the CONTACT Mental Health Outreach Service, an ACT program established in Southeast Toronto in 1996. CONTACT

> provides intensive case management services to individuals with severe and persistent mental illnesses, most of whom suffer physical illnesses and substance use disorders and many of whom are homeless or under-housed. These individuals are so severely ill that they are not successfully managed even by a well-resourced general hospital psychiatric service and historically have been either neglected, placed in jails or referred for prolonged inpatient admission to provincial psychiatric hospitals. This allocation of general hospital resources to establish an assertive community treatment team is unique in Canada and represents an attempt to broaden the capacity of the general hospital/community supports and services system (Wasylenki, 1997: 2-3).

CONTACT includes two half-time psychiatrists, a Clinical Leader Manager with a masters degree in nursing, two substance abuse counselors (one counselor is also a registered nurse on the team), two additional registered nurses, and six masters and bachelors level staff representing social work, vocational rehabilitation, recreational and occupational therapy disciplines. Another staff member, a half-time peer support worker, has a reduced clinical role with clients. The peer support worker position was a modification in the fidelity scale to integrate the consumers' perspective into the team's practice culture (Teague et al., 1998).

In accordance with the ACT model, CONTACT case managers share responsibility for clients and have an intensive client to staff ratio of 10:1. Services are provided on a 24-hour basis, seven days per week. The multi-disciplinary staff provides all services directly, including medication management, crisis intervention, and assistance with activities of daily living. In addition, case managers work with clients to locate housing and employment and liaise with the criminal justice system when necessary (Waslenki, 1997).

Integrated substance abuse treatment interventions by the CONTACT team incorporate stages of change, motivational interviewing, and a harm reduction approach. Individual and group counseling and treatment modalities are employed, in accordance with the new ACT guidelines for fully integrated, comprehensive addictions services for clients with concurrent disorders.

The CONTACT program modified the original PACT model with the addition of psychosocial rehabilitation principles (PSR) to its case management planning approach (Gehrs, personal communication, 2003). The PSR perspective supports community integration through employment, recreation, social networks, and housing (Health Canada, 2001: viii; Wasylenki et al., 2000). This client-centred orientation recognizes "the fact that the major problems faced by consumers come after their initial diagnosis and treatment, and are not medical, but social" (Trainor et al., 1997: 60). PSR principles include a focus on hope for recovery, emphasis on strengths rather than deficits, and developing client capacities through skills training interventions and environmental supports (Wasylenki et al., 2000).

In their review, Baronet and Gerber (1998) advised researchers to conduct a process evaluation prior to presenting study results to determine if the program under investigation has been well implemented. Otherwise, researchers are evaluating a "moving target [by] measuring the impact of specific services without first evaluating if the program was effectively delivering these services" (pp. 222-3). Fidelity scales have been developed as research tools to study process as well as the relationships between program components and outcomes (McHugo et al., 1999). The recent incorporation of these standardized scales in case management research literature promotes consistency between studies by providing a detailed guide for the evaluation and description of a program's structure and services (Teague et al., 1998).

The DACT fidelity scale was utilized in the Toronto study to assess the ACT and ICM programs (Higgins, personal communication, 2003). Programs were rated on 28 variables covering criteria reported in the literature or generally accepted as appropriate for implementation of an integrated ACT program. In this fidelity measure, the variables are anchored on 1 to 5 scales and grouped within three subscales: human resources structure and composition, organizational boundaries, and nature of services. Following the DACT rating protocol, ten charts of study subjects were randomly selected from the experimental group for review. Data sources included clinicians' activity logs, agency management information systems and documents, site visits, and interviews. Process ratings showed that CONTACT demonstrated high fidelity to the ACT standards, with an overall score of 4.42 out of 5.0.

CONTACT scored in the low fidelity range on two domains in the DACT scale. The Clinical Leader Manager does not provide direct clinical services to clients in her supervisory position, although she is actively involved in daily team meetings and case planning discussions. The program deviated from the model as an accommodation to the political health care culture in Ontario. Registered nurses cannot hold a management position that also requires clinical functions, according to union regulations (Gehrs, personal communication, 2003). Secondly, only one of the 10 randomly selected subjects attended the team's concurrent disorder treatment group, indicating a low rate of participation by clients with co-occurring substance use problems.

CONTACT received a score of 3, or moderate fidelity, on the "Frequency of Contact" item. Face-to face service contacts with the 10 selected subjects averaged 2.37 per week. Frequency of contact with informal supports and the reduced clinical role of the peer support worker also garnered moderate ratings.

Subjects assigned to the control group received ICM services from Community Connections. This program was established in 1998 to serve as a comparative case management model for the purposes of the study. The five-member multi-disciplinary team includes a team leader with a master's degree in nursing, two additional registered nurses, and two social workers. The practicing team leader assumes an individual client caseload, providing direct clinical services in addition to limited supervisory responsibilities, as allowed by union guidelines.

Community Connections has developed a formalized partnership with an outside agency called Community Care Access Centre (CCAC), in which five full-time and two part-time registered nurses are dedicated exclusively to the ICM team. The CCAC nurses deliver and monitor client medications through daily community outreach. The structured arrangement between the two agencies represents the third level of integration, defined as "collaboration" (Konrad, 1996). At this integration level, formal procedures define the specific roles of each agency to achieve shared goals. While CCAC provides the funding for the nurses, they are essentially members of Community Connections' hybridized team and their services have been factored into the program's fidelity scores.

The core staff assumes primary responsibility for individual caseloads, with an average client to staff ratio of 15:1 over the course of the study. With the addition of CCAC clinical staff, this ratio drops to less than 10:1. Team meetings are held once a week to discuss clients. The five case managers directly deliver clinical, rehabilitation, and social services through intensive community outreach but must refer some areas of responsibility, such as vocational rehabilitation, to outside clinicians.

Social skills and recreational rehabilitation are central areas of focus in the team's programming. Activities are offered three times per week, including water aerobics, music classes, and cooking clubs. According to the former team leader, responsibility for medication management by CCAC nurses allows interactions between the Community Connections' case managers and clients to be less medically-focused (Kirwan, personal communication, 2003).

Clinicians directly provide individual substance abuse treatment to clients through counseling interventions, following the principles of stages of change, motivational interviewing, and harm reduction. CCAC nurses are not involved in this area of care. Community Connections refers clients to addiction specialists for more intensive treatment, when appropriate, through informal linkages to community agencies outside the hospital system. Due to the lack of structured in-house individual and group treatment programs for concurrent disorders, Community Connections rated in the low to moderate fidelity range on these domains.

The program operates within a standard 40-hour workweek. Clients in crisis are encouraged to access alternative community resources when staff is unavailable after-hours and on weekends. Case managers use role-play exercises to coach clients on the use of outside services, including telephone distress lines.

The expectation that clients should learn and utilize "real life skills to stand on their own feet" (Kirwan, personal communication, 2003) exemplifies the recovery-oriented approach promoted by the Community Connections program. The recovery model emphasizes consumer self-reliance by providing clients with the tools to deal with basic areas of their social life, such as housing, friends, and work, themselves (Trainor et al., 1997). "Instead of protecting consumers from stress in hopes of preventing relapse and declining functioning, clinicians coach them to overcome the stresses of life. Clinicians reinforce strengths and help the growth process by encouraging and supporting healthy risk-taking" (Torrey & Wyzik, 2000: 214).

Research staff applied the same fidelity rating protocol for the assessment of Community Connections as that described for CONTACT. Community Connections received an overall score of 3.51, or moderate, on the DACT fidelity scale. This corresponds to the score for the case example of intensive case management (3.52) in the fidelity literature (Teague et al., 1998). The majority of low fidelity scores for Community Connections were related to staffing, as the team does not include a psychiatrist, vocational or substance abuse specialist, or peer support worker. The team received a moderate score on the "time-unlimited services" subscale, due to the transitioning of 25% of clients to less intensive programs. In the area of frequency of client contact, Community Connections rated low fidelity with .875 contacts per week. The additional CCAC contacts increased the frequency to 4.25 weekly, and raised the overall score for the hybridized program to 5, or high fidelity.

Analysis

At baseline, group equivalence between case management models (ACT versus ICM) was assessed on demographic and diagnostic characteristics via two-tailed t-tests and chi-square analyses. Similar methods were used to assess the concurrent disorder and SPMI alone groups.

Self-report outcomes were converted from continuous to categorical variables in scales ranging from poor to excellent. A good client outcome was determined either by a rating increase between baseline and month 18 (e.g., from poor to fair) or a score of good or excellent at both baseline and the final assessment.

Categorical variables were assessed using chi-square procedures. Univariate regression analysis tested for association and trends, when appropriate. A step-wise forward logistic regression was used to determine if age or gender significantly affected the housing outcomes of subjects with concurrent disorders. All effects were evaluated at the 0.1 level of significance rather than the .05 level, given the small sample with concurrent disorders and the large proportion of missing data on some outcome measures.

CHAPTER XI

RESULTS

Of the 80 enrollees, follow-up data were available on one or more measures at 18-months for 72 (90%). Subjects in the ICM group showed a higher rate of attrition from the study (17.5%) than those in the ACT group (3%). Attrition was due to subject refusal to participate, relocation out of the catchment area, and transitioning to other programs. Compared to participants who completed the study, dropouts were more likely to be recently homeless or changing addresses frequently (75%), diagnosed with schizoaffective disorder (37%), and to have high school or higher education (88%). No significant differences were observed in gender, age, or substance use between clients who completed the follow-up interviews and those who did not.

As Table 1 shows, the two diagnostic groups of concurrent disorders (N = 31) and SPMI without alcohol or drug abuse issues (N = 41) were similar in age, gender, marital status, psychiatric diagnosis, and housing instability at baseline. The groups differed significantly ($p < .05$) in their level of education, as persons with co-morbid substance use disorders were less likely to have completed high school.

Table 1

Group equivalence at baseline: Comparisons between persons with severe and persistent mental illness with and without a co-morbid substance use disorder

Variable	With concurrent disorder (N=31)	Without concurrent disorder (N=41)	Test statistic	df
Age			t = 1.26	70
Mean (SD)	41.7 (10.1)	38.6 (10.4)		
Gender			$x^2 = .01$	1
Male (N/%)	23/74.2	30/73.2		
Female (N/%)	8/25.8	11/26.8		
Marital Status			$x^2 = .56$	1
Currently with partner (N/%)	1/3.2	3/7.3		
Currently without partner (N/%)	30/96.8	38/92.7		
Education			$x^2 = 8.42$	1*
Less than high school (N/%)	18/58.1	10/24.4		
Completed high school or above (N/%)	13/41.9	31/75.6		
Psychiatric diagnosis				
Schizophrenia (N/%)	29/93.5	35/85.4	$x^2 = 1.20$	1
Bipolar disorder (N/%)	9/29.0	8/19.5	$x^2 = .89$	1
Schizoaffective (N/%)	7/22.6	4/9.8	$x^2 = 2.24$	1
Housing status at baseline			$x^2 = .26$	1
Homeless or unstable (N/%)	17/54.8	20/48.8		
Housed and stable (N/%)	14/45.2	21/51.2		

* $p < .05$

Table 2

Group Equivalence at Baseline: Comparisons between the ACT and ICM programs on sociodemographic and baseline clinical characteristics

Variable	ACT (N=39)	ICM (N=33)	Test statistic	df
Age			t = -.57	70
Mean (SD)	39.3 (9.4)	40.7 (11.5)		
Gender			$x^2 = .70$	1
Male (N/%)	30/77.0	23/69.7		
Female (N/%)	9/23.0	10/30.3		
Marital Status			$x^2 = .65$	1
Currently with partner (N/%)	3/7.7	1/3.0		
Currently without partner (N/%)	36/92.3	32/97.0		
Education			$x^2 = .49$	1
Less than high school (N/%)	17/43.6	11/33.4		
Completed high school or above (N/%)	22/56.4	22/66.6		
Psychiatric diagnosis				
Schizophrenia (N/%)	35/87.5	29/90.6	$x^2 = .18$	1
Bipolar disorder (N/%)	8/20.0	9/28.1	$x^2 = .65$	1
Schizoaffective (N/%)	5/12.5	6/18.8	$x^2 = .54$	1
Concurrent disorders			$x^2 = 1.13$	1
With co-morbid substance abuse (N/%)	14/35.9	17/51.5		
Without co-morbid substance abuse (N/%)	25/64.1	16/48.5		
Housing status at baseline			$x^2 = .47$	1
Homeless or unstable (N/%)	22/56.4	16/48.5		
Housed and stable (N/%)	17/43.6	17/51.5		

Table 2 summarizes the data comparing subjects receiving services from the ACT (N = 39) and ICM (N = 33) teams in this randomized trial. Between-group comparisons revealed no significant baseline differences between the two teams on demographic and clinical factors, including residential history and substance abuse indicators.

At month 18, clients with concurrent disorders had significantly worse housing outcomes ($p < .05$) compared to persons without co-morbid addiction disorders, confirming Hypothesis 1 (Table 3). Of those with SPMI alone, 85% were living in independent or dependent settings compared to 57% of persons with concurrent disorders. Rooming houses accounted for 7% of housing for persons without substance use problems, whereas 23% of those with addictions resided in these typically substandard housing units. Just 5% of those with SPMI alone were literally homeless at the endpoint of the study compared to 17% with addiction disorders.

Table 3

Housing outcomes at 18-months: Comparisons between persons with severe and persistent mental illness with and without a co-morbid substance use disorder

Residential settings at 18-months	With concurrent disorders	Without concurrent disorders
Private house/apartment (N/%)	13/43.3	25/61.0
Group home (N/%)	2/6.7	
Hostel/shelter (N/%)	5/16.7	2/4.9
Boarding home (N/%)	2/6.7	10/24.4
Rooming house (N/%)	7/23.3	3/7.3
Hospital (N/%)	1/3.3	1/2.4
Total	**30**	**41**

$x^2 = 12.61$, df = 5, $p < .05$

Clients without concurrent disorders also showed greater residential stability at the final assessment ($p < 0.1$) with nearly 90% maintaining the same address or moving only once in the previous nine months. Approximately 30% of the concurrent disorder group changed addresses at least twice in this period, including two individuals who moved 10 times.

To determine if substance abuse or dependence predicted housing outcomes for subjects, a univariate logistic regression model was created to compare diagnostic groups on the stability and quality of their main residential setting between nine and 18-months. For this purpose, these indicators were collapsed into one dichotomous variable, defined as either a poor or good housing outcome. Persons with concurrent disorders were shown to be at nearly twice (1.9) the risk of homelessness or housing instability than those without co-morbid drug or alcohol risk. The lack of statistical power for this finding ($p = 0.3$) may be due to the small size of this study subgroup. However, it identifies a clinically significant trend of decreased community tenure for persons with SPMI who abuse substances.

The additional variables of age and gender in the analysis did not change the housing results. Psychiatric diagnosis also was not related to housing outcomes, as participants with schizophrenia, schizoaffective disorder, or mood disorders were equally successful at achieving stable housing.

Perceived social support improved significantly ($p < 0.1$) for the entire sample between baseline and the final assessment. No differences were found between diagnostic groups on this variable. Overall, 50 subjects rated their social support higher and five indicated worsened social adjustment at 18-months.

Interestingly, an inverse, non-statistical relationship was found between housing outcomes and social support. All subjects with the greatest housing instability between nine and 18-months reported improved social adjustment. Furthermore, all individuals who were homeless at 18-months indicated improvements in their social support. The only subjects with worsened support at the study endpoint were all living in stable housing, maintaining the same residence or moving only once in the previous nine months.

A similar inverse trend was found in the concurrent disorder subgroup (Table 4) though the large proportion of missing data (29%) for this comparison reduced the statistical power of the analysis. No person in a poor residential situation at 18-months indicated decreased social support and two subjects in consistent, quality housing described worsened support over time. These results do not support the prediction in the second hypothesis that improved housing quality and stability would be related to increased social adjustment.

Table 4

Relationship between housing outcomes and subjective social support at 18-months for persons with concurrent disorders

	Housing outcomes at 18-months		
Social support at 18-months	Unstable/homeless	Stable/housed	Total
Improvement from baseline (N/%)	8/34.8	15/65.2	23
Worsened from baseline (N/%)		2/100.0	2
Total	**8**	**17**	25

$x^2 = 1.02$, df = 1, $p = 1.0$

The self-report measure of empowerment, or perceived self-efficacy, improved substantially for the entire sample ($p < .001$) and no differences were found between diagnostic groups. As Table 5 shows, this subjective indicator of competency showed an inverse relationship with housing stability ($p < .05$) but no significant relationship was found between this outcome variable and housing quality.

Table 5

Relationship between housing stability and empowerment at 18-months for entire SPMI sample with and without co-morbid substance use disorders

	Number of housing moves between 9 and 18 months							
Empowerment at 18-months	0	1	2	3	4	9	10	Total
Poor (N/%)	1/3.1		1/20.0			1/100.0		3/5.5
Fair (N/%)	7/21.9	6/54.5	1/20.0					14/25.5
Good (N/%)	22/68.8	5/45.5	3/60.0	1/100.0	3/100.0		2/100.0	36/65.5
Excellent (N/%)	2/6.2							2/3.5
Total	**32**	**11**	**5**	**1**	**3**	**1**	**2**	55

$x^2 = 29.17$, df = 18, $p < .05$

For the concurrent disorder group, increased empowerment was also inversely related to housing outcomes, though not to a statistically significant degree (Table 6). Again, persons who demonstrated the greatest housing instability, indicated by number of moves, reported improvements on this subjective indicator of community adjustment. Of the 15 homeless subjects with concurrent disorders, 11 (67%) described increased empowerment.

Table 6

Relationship between housing outcomes and empowerment at 18-months for persons with concurrent disorders

	Housing outcomes at 18-months		
Empowerment at 18-months	Unstable/homeless	Stable/housed	Total
Improvement from baseline (N/%)	11/61.1	7/38.9	18
Worsened from baseline (N/%)	4/80.0	1/20.0	5
Total	**15**	**8**	23

$x^2 = .62$, df = 1, $p < .62$

A logistic regression analysis found that persons reporting increased empowerment were 2.5 times more likely to have worse housing outcomes. Though this finding lacks statistical power, it suggests a clinically significant inverse trend between these outcome variables for persons with concurrent disorders. Hypothesis 2 is not supported as these results show that increased empowerment is not mediated by an improved residential situation.

Consistent with the focus on housing outcomes in this study, the quality of life analysis compared diagnostic groups on their satisfaction with current living conditions. This subscale score from the QOLI inventory showed a significant difference between groups (p < .05) as persons with concurrent disorders reported much less satisfaction with their accommodations at 18-months than those with SPMI alone (Table 7).

Table 7

Relationship between housing outcomes and quality of life on the QOLI housing subscale at 18-months for persons with SPMI with and without a co-morbid use disorder

Housing satisfaction at 18-months	With concurrent disorders	Without concurrent disorders	Total
Improved from baseline (N/%)	13/52.0	30/85.7	43/71.7
Worsened from baseline (N/%)	12/48.0	5/14.3	17/28.3
Total	**25**	**35**	60

$x^2 = 8.16$, df = 1, $p < .05$

An inverse, non-significant relationship was found between client satisfaction on this quality of life indicator and housing outcomes for persons with concurrent disorders (Table 8).

Table 8
Relationship between housing outcomes and quality of life on the QOLI housing subscale at 18-months for persons with concurrent disorders

	Housing outcomes at 18-months		
Housing satisfaction at 18-months	Unstable/homeless	Stable/housed	Total
Improvement from baseline (N/%)	4/33.3	8/66.7	12
Worsened from baseline (N/%)	2/25.0	6/75.0	8
Total	6	**14**	20

$x^2 = .16$, df = 1, $p < 1.0$

Forty-three percent of persons living in quality, stable housing at month 18 reported dissatisfaction with their living situation. Subjects demonstrating the greatest housing instability through frequent address changes reported they were satisfied with their current situation. Interestingly, the majority of persons living on the streets or in shelters/hostels described their living arrangements as "good."

For the sample as a whole, self-reported ratings of symptom distress improved significantly (p < .05) over the course of the study and were strongly mediated by the outcome variable describing both housing quality and stability. Subjects who attained and maintained quality dependent or independent accommodations between nine and 18-months were more likely to have reduced distress from psychiatric symptomatology. However, housing stability appeared to be the more powerful mediating factor than residential quality on subjective distress. The association between distress and the individual variables describing current housing at 18-months or main type of housing if the subject moved in this period was p = .101 and p = 1.37, respectively. This association strengthened considerably (p < .05) when comparisons were made between symptom distress and number of moves in the previous nine months. Eighty-five percent of those with reduced symptoms at 18-months moved no more than once in the previous nine months, indicating consistent community tenure (Table 9).

Table 9

Relationship between housing stability and subjective symptom distress at 18-months for entire study sample

	Housing stability at 18-months		
Symptom distress at 18-months	Unstable[1]	Stable[2]	Total
Improvement from baseline (N/%)	6/15.0	34/85.0	40
Worsened from baseline (N/%)	5/45.5	6/54.5	11
Total	**11**	**40**	51

$x^2 = 4.73$, df = 1, $p < .05$

[1] Unstable housing defined ≥ 2 moves in previous 9-months

[2] Stable housing defined as < 2 moves in previous 9-months

The relationship between variables was also apparent for persons with concurrent disorders, though the small subgroup (N = 22) lacked statistical power (Table 10).

Table 10

Relationship between housing outcomes and subjective symptom distress at 18-months for persons with concurrent disorders

	Housing outcomes at 18-months		
Symptom distress at 18-months	Unstable/homeless	Stable/housed	Total
Improvement from baseline (N/%)	4/26.7	11/73.3	15
Worsened from baseline (N/%)	4/57.1	3/42.9	7
Total	**8**	**14**	22

$x^2 = 1.92$, df = 1, $p = .34$

Given the limitations of this data, a univariate regression analysis indicated that those with good housing outcomes at 18-months in the concurrent disorder group were 3.7

times more likely to have lower distress compared to those in a poor residential situation, confirming Hypothesis 2.

Outcomes on the self-reported measures of symptom distress and quality of life related to living conditions were associated at the 0.1 level of significance. Subjects expressing satisfaction with their housing arrangements were 5 times more likely to report reduced psychological distress from their baseline level.

Intensity of contact with service providers was associated with housing outcomes for persons with co-morbid substance use ($p < 0.1$), as predicted in Hypothesis 2. Subjects with daily or weekly contact with case managers were 4.5 times more likely to have good housing outcomes compared to those with less frequent contact (Table 11).

Table 11
Likelihood ratios for associations between process and outcome variables

Outcome category and variable	Likelihood ratio[1]	df
Stable independent or group housing		
Frequency of service contact – concurrent disorders only	4.50*	1
ICM case management condition – entire sample	5.89**	1

* $p < 0.1$
** $p < .05$
[1] Likelihood ratio determined by univariate logistic analysis and can be interpreted in a similar manner as chi square statistics

Furthermore, the intensity of contact significantly impacted subjective quality of life on the housing domain ($p < .05$). Of those reporting satisfaction with their housing, nearly 80% (N = 28) were seen at least weekly by case managers. Service intensity was not associated with the other self-report indicators of symptom distress, empowerment, or social adjustment.

The final independent variable examined treatment effects to determine if ACT or ICM were more successful at improving the housing situation for clients between the baseline and 18-month assessments. Table 11 shows that, for the sample as a whole, clients receiving services from the ICM team were 5.9 times more likely to have improved housing status over time than those in the experimental group ($p < .05$). This trend was also found for the subgroup with concurrent disorders, though not to a significant degree (Table 12). For these subjects, 88% (N = 14) improved both the quality and stability of their housing status in the control group compared to 71% (N = 10) of clients with ACT. Therefore, Hypothesis 3 was not upheld.

Table 12
Relationship between case management approach and housing outcomes at 18-months for persons with concurrent disorders

	Case management models		
Housing outcome at 18-months	ACT	ICM	Total
Improvement from baseline (N/%)	10/71.4	14/87.5	24
Worsened from baseline (N/%)	4/28.6	2/12.5	6
Total	**14**	**16**	30

$x^2 = 1.21$, df = 1, $p = .38$

The ICM/CCAC hybrid team delivered more service intensity ($p < 0.1$) than the ACT program. A significantly larger percentage of clients had weekly contact from Community Connection clinicians (78%) than the CONTACT group (56%). More than one-third of participants receiving ACT services had at least monthly contact with case managers compared to 15% of the ICM group.

No differences were found between treatment models on the self-report measures. Social support, empowerment, and psychological distress substantially improved for clients of both ICM and ACT between baseline and the study endpoint. Neither case management model was associated with significant improvement on the quality of life subscale of housing satisfaction.

CHAPTER XII

DISCUSSION

This investigation was equally focused on two issues related to housing outcomes of adults with severe and persistent mental illness: the effects of co-occurring substance dependence disorders and the relative effects of two forms of integrated case management service delivery models. In addition, these two analyses were examined for four secondary outcome measures: subjective symptom distress, social adjustment, empowerment, and quality of life in the housing domain, as well as one service use measure – frequency of contact with case managers.

The first hypothesis was that there would be an interaction of substance use status and residential situation at 18-months. It was predicted that drug or alcohol problems would threaten the quality and stability of housing arrangements for individuals with SPMI. The hypothesis was supported as co-morbid addiction disorders substantially reduced the likelihood of clients achieving consistent housing in the community. This data adds to the growing evidence that substance abuse is a primary factor mediating housing stability.

The second major hypothesis was that there would be an interaction of case management models with substance dependence status. It was predicted that the case management approach with fully integrated substance abuse and mental health treatment would be the most effective model for seriously mentally ill subjects who were diagnosed as having a substance use disorder. This hypothesis was not supported. The less integrated ICM program was the superior treatment on the quality and stability housing measures for subjects with concurrent disorders. Compared with substance dependent subjects in the fully integrated ACT program, persons with concurrent disorders receiving services from ICM showed greater improvement in their residential situation during 18-months of case management treatment.

Another important finding was that both ACT and ICM clients attained excellent outcomes in terms of subjective measures of symptom distress and empowerment. Social support also improved across both case management interventions, but to a less significant degree ($p < 0.1$) than the self-report measures of psychological distress and empowerment. The data did not show any main effects involving ACT or ICM treatment on subjective quality of life in the housing domain.

The differential gains on housing outcomes for participants with concurrent disorders in the less integrated program could be explained by several factors. The most direct interpretation is that the level of service integration provided by ACT is not strongly preferable to that of ICM, provided that both teams are able to get access to integrated substance abuse treatment. This interpretation, however, should be modified by the caveat that the integration stage achieved between ICM and outside substance abuse programs was low. On the five-point integration scale (Konrad, 1996), activities between agencies reached only the second level of informal "cooperation and coordination." These activities included joint planning and organized efforts to modify existing substance abuse treatment programs to meet the needs of individuals with co-morbid severe psychiatric disorders.

A related factor concerns the implementation of integrated services within the same team. All staff in the ICM program received specialized training in addiction assessment and treatment through conferences and workshops (Kirwan, personal communication, 2003). The broad expertise acquired by all case managers may have created the necessary level of integration between mental health and substance abuse services within the program to achieve the superior housing results demonstrated in this study. Designated addictions specialists may not be a necessary program component when all service providers essentially become "specialists."

The two certified substance abuse counselors on the ACT team primarily worked with clients with the most severe substance use problems. These addiction specialists carried full caseloads of 10 clients each in addition to facilitating weekly concurrent disorder treatment groups. Formal cross-staff training by the substance abuse counselors was not regularly offered to other team members due to workload constraints (Gehrs, personal communication, 2003). Without basic detection and intervention skills across the team, it is likely that some clients with concurrent disorders were not identified or appropriately treated for their co-morbid substance use. Though the ACT model has been modified to include concurrent disorder specialists, this level of program integration may be insufficient if other team members lack the necessary skills to work effectively with these clients, given the high prevalence of addiction disorders in the SPMI population.

Study process data revealed that ICM was the more intensive model of service provision compared to the ACT program, due to linkages established with the non-ICM nursing program. A greater percentage of clients were seen at least weekly by

ICM/CCAC clinicians than those with the ACT team. Frequency of contact significantly mediated housing outcomes for subjects with substance use disorders, though they remained at higher risk than persons with SPMI alone. Clients with concurrent disorders who received daily or weekly clinician contact were 4.5 times more likely to have stable, quality housing at month 18 than participants with fewer service encounters. The greater housing stability achieved by subjects with the ICM team could be due to differences in the type and amount of services rather than to integration of services.

Greater service intensity also mediated subjective quality of life related to living conditions. The majority of subjects expressing satisfaction with their housing (80%) were seen at least weekly by clinicians. This may be due to the increased ability of case managers who maintain frequent contact with their clients to identify and respond to crises that could threaten housing stability. This interpretation is supported by the additional finding showing that subjects who reported satisfaction with their living arrangements were more likely to show variable improvement on subjective symptom distress from their baseline level.

A further result strengthens the argument that service intensity increases housing stability. Measures of subjective symptom distress were strongly mediated by housing instability. Most clients (85%) who moved no more than once in the nine to 18-month study interval reported significantly lower distress from their psychiatric symptoms.

An alternative explanation for the findings is that the social support provided by professionals through frequent contact ameliorated psychological distress that can destabilize housing arrangements. The data does not support this interpretation, however, as no significant relationship emerged between service intensity and the subjective measure of social support.

The type of services provided by the ACT and ICM teams also differed and may explain the differences found in the contact frequency associated with improved housing outcomes. The linkage established between the ICM and CCAC agencies allowed the case managers to concentrate on social and recreational activities with clients rather than medication delivery and monitoring. Less than five percent of ICM case management services were devoted to medication delivery or monitoring in the first nine months of the study compared to nearly 20% of ACT interventions (Cheung et al., 2002). As Ziguras and Stuart (2000) noted, "A greater emphasis on monitoring may result in…less client satisfaction, because clients may perceive that case managers are intrusive and controlling…Reconciling the monitoring and support functions remains an important dimension of case management programs" (pg. 1416). Medication management is an important function of community-based case management programs for persons with SPMI. The unique arrangement between ICM and CCAC shifted the focus of service and may have resulted in a stronger therapeutic alliance and increased client involvement with the case management program.

The inverse, non-significant relationship between housing outcomes and subjective measures of social support, empowerment, and housing satisfaction was an unexpected finding. The fact that subjects described progress towards recovery regardless of housing status may be explained by the regression to the mean effect, which is the tendency of groups in such extreme positions as homelessness to improve. Alternative explanations include lag effects on functional status behind those for housing outcomes or the possibility of a weak relationship between housing arrangement and the domains of functioning (McLellan et al., 1981).

Social comparison theory offers a possible interpretation for the high satisfaction expressed by subjects in poor quality or unstable housing (Diener, 1984). According to this theory, subjective measures of well-being are partly determined by comparing one's own circumstances with those of others in the same community (Wills, 1981). When people perceive themselves to be worse off than others in the same environment, they report lower subjective satisfaction. It is possible that subjects in this study used proximate others in a similarly poor residential situation when rating their own level of community adjustment.

Some subjects reporting worsened social support were living in stable, supported independent units at 18-months. In a study by Nelson et al. (1997), residents in single apartments perceived deterioration in their social relationships over time. Schutt and Goldfinger (1996) noted that some respondents with SPMI in a housing survey indicated a preference to live with others. Pulice et al. (1995) commented on the difficulty that current pressures towards independent housing create for clients to live alone. Though most consumers express the desire to have their own apartment, this housing arrangement is not suitable for all clients.

Psychiatric symptoms, particularly those associated with schizophrenia, often interfere with the individual's ability to reach out to others to establish a network of friends. Only 6% of participants in this study were currently married or living with a partner. Among those with concurrent disorders, just one person was living with a spouse or partner. Ninety-seven percent (N = 30) had never married or were separated, divorced, or widowed. For persons with SPMI, being single and living alone can create a high risk of social isolation.

All participants with concurrent disorders who were homeless at the study endpoint described good social support. This finding is inconsistent with previous research describing the profound isolation of homeless people (Wasylenki et al., 1993). One possible explanation for this discrepancy is the difference in reference groups. The Wasylenki et al. study (1993) looked at the social adjustment of persons with SPMI but without co-morbid substance use disorders. Substance use can create a social network for persons with SPMI who have difficulty fulfilling basic social roles (Carey et al., 2000). Persons with concurrent disorders have described the reinforcing effects of substance use as it allows them to feel they "belong and fit in" and escape from feeling alone and isolated (Maisto et al., 1999: 225). Illicit drugs are easily accessible near shelters and hostels, often located in neighbourhoods where dealers and users congregate. In a qualitative study by Maisto et al. (1999), subjects indicated that pressures from peers and substance availability were significant precipitants to substance use. According to Bellack and DiClemente (1999):

> Pronounced social impairment would leave patients with schizophrenia and substance abuse vulnerable in a number of ways: they would have difficulty developing social relationships with individuals who do not use drugs, resisting social pressure to use drugs, and developing the social support system needed to reduce use (pg. 77).

. Researchers have noted that progress towards recovery can result in lower ratings on subjective social relation measures as individuals change social patterns to avoid relapse (Drake et al., 1998; Meisler et al., 1997).

Horan et al. (2001) offered a countering viewpoint to the negative interpretations of self-report improvements for consumers in poor or unstable housing. They observed that studies tend to ignore the residents' perspective regarding their sense of well-being in different community settings. These researchers found that subjects living in shelters or hostels were generally satisfied with the quality of their environment and social contacts. They advised investigators to reconsider the value of objective indicators of success, such as those used in this analysis to determine "good" or "poor" housing outcomes. A participant in their study provided some insight into the subjective experience of homelessness. "[The hostel] is my home, where I have friends. The supervisors, they look after me. You know, I've lived in hospital from when I was 15…for the next 20 years. I'd rather live here than there! You've got a room and friends, but you're not locked in a cell. You've got freedom" (pg. 333).

The theme of freedom also emerged in the literature on empowerment and housing. Seilheimer et al. (1996) found that, as consumers experience recovery and increased self-efficacy, they aspire towards housing that allows a greater degree of autonomy and personal control. Half of the subjects in their study indicated a desire to move from their current housing, which they rated as unsatisfactory on the QOLI Living Condition subscale.

Their findings may explain the results in the current investigation showing an inverse relationship between empowerment and number of residential moves. The concurrent disorder subgroup were more likely to be living in poor quality residential settings compared to persons with SPMI alone and rated their housing satisfaction significantly lower on the QOLI subscale. Moves may be linked to efficacious coping behaviour and personal control as individuals make efforts to attain what they expect and want in their living conditions.

The association between frequent moves and increased subjective symptom distress indicates, however, that this coping strategy may have negative consequences for this population. Frequent address changes may be less a matter of personal choice than the result of evictions caused by behavioural disturbances related to symptomatology. This interpretation is supported by the literature on concurrent disorders and community tenure (Bebout et al., 1997; Hurlburt et al., 1996; Olfson et al., 1999). However, researchers should use caution in their interpretation of housing retention data in light of the information provided by the self-report indicators. These measures provide important insights into the personal meaning of housing outcomes.

Recent efforts to reform the mental health systems in Canada and the United States are shifting the emphasis from professional to clients' perspectives on the direction and quality of care (Perkins, 2001). Traditionally, program evaluations have neglected to include consumers' voices; hence, "little is known about their needs or interests. As a result, their needs may not be met" (Substance Abuse and Mental Health Service Administration, 1996: 2).

The results of this study must be interpreted in light of its limitations. First, the concurrent disorder sample size was not big enough to draw statistically valid conclusions on many of the indicators, especially given the large proportion of missing data from this group at the final assessment. The inferences drawn from findings in the larger sample should be considered as an initial sounding. In addition, the small sample size of the target population limits the extent to which the results can be generalized. "Particular characteristics of clients, which have the potential for influencing the findings may easily find themselves over or underrepresented in the evaluated sample" (Baronet & Gerber, 1998: 224).

Second, the sample was limited by prospective subjects' refusal to participate and exclusionary criteria related to violence or competence to consent. Though these criteria are essential in case management research, the combined effect of these factors may have reduced the observed rate of substance use to below what would have been found with more representative sampling.

A third limitation is the small number of case management programs in the study, raising the possibility of an alternative explanation for the findings. The relative effectiveness of the individual clinicians on the two teams is difficult to distinguish, and may be the more powerful mediating variable than service integration or the case management model.

Fourth, a longer follow-up period may be needed in studies of the concurrent disorder population. Many consumers with co-morbid addiction disorders are not motivated to reduce substance use, especially in the early phases of case management treatment. The 18-month study interval may have been too short to demonstrate improvement on the housing measures for this group. Drake et al. (1993) followed subjects for four years and found that improvements for persons with concurrent disorders continued to accrue beyond 18-months.

Finally, the unconventional arrangement between ICM and CCAC limits the generalizability of the findings. The level of integration achieved between these agencies may be unrealistic for many programs. However, several key elements of the strategies employed clearly are transferable, such as the intensity of service, an appropriate skill-set for all case managers in assessment and interventions for co-occurring disorders, and the emphasis on rehabilitation and support.

The value of the results reported here is strengthened by the methodology used in the study, which contributes to its internal validity. This investigation is a true-experimental design and one of the few in the concurrent disorder research literature involving integrated case management interventions. The clinician rating scales for substance abuse are objective research diagnostic measures that complement the DSM-IV and increase assessment sensitivity. Another methodological strength was the completion of a fidelity process analysis to determine the features distinguishing between the programs to ensure that different models of case management interventions were being compared.

CHAPTER XIII

CONCLUSION

The poor housing outcomes of persons with concurrent disorders in relation to those with SPMI alone remains a concern, given that the case management approaches in this investigation were based on current best practice standards. Despite integrated substance abuse and mental health services in the two programs, many of these clients continued to have difficulties in their residential adjustment and were either homeless or living in unstable, substandard housing after 18-months of treatment.

Integrated treatment is undoubtedly necessary to assist this population. Not only has it been demonstrated to be more effective at engaging persons with co-morbid SPMI and substance use, but long-term follow-up data indicates that recovery is possible when programs are tailored to their specific needs and appropriate for their motivational stage.

However, the question of how to implement integrated services has not been adequately addressed in the research to date. The guidelines remain vague as to the necessary breadth of expertise that should be required of all team members, not only the concurrent disorder specialists now supplementing some mental health case management programs. According to Carey et al. (2000), "Given the recent development of many of the treatment models designed for co-morbid substance abuse and psychiatric disorders, it is safe to assume that most practicing mental health professionals have not been exposed to these models during their formal training" (pg. 191). An appropriate knowledge base can guide effective practice as it provides a better understanding "of the interactive effects of homelessness, mental illness, and substance abuse as well as the effects of these three factors on physical, mental, social, and emotional well being" (Sheridan et al., 1993: 415).

Another advantage of a general training approach is that all members would share an understanding of the principles behind concurrent disorder treatment, increasing the likelihood of team consensus and consistency in case planning interventions for these clients. Without this broad education, the possibility of team discord is heightened, particularly in the ACT model with its unique emphasis on shared caseloads. A common awareness of the issues related to substance use is essential to build team consensus around the interventions that can effectively address these problems. Future research should incorporate direct measurement of service integration within individual case management programs to determine the relative effectiveness of different implementation strategies.

In addition to integrated treatment, service intensity must also be considered an essential aspect of care for persons with severe psychiatric and substance use disorders. The results of this study showed the significant impact of contact frequency on the housing adjustment of persons with concurrent disorders. The more intensive service provision delivered by the hybrid ICM/CCAC team proved more effective on housing outcomes and was the only area on the fidelity scale rated higher for ICM than ACT. This singular distinction between the programs provides strong support for the hypothesis that service intensity is the critical component promoting community tenure.

These findings are consistent with previous research on homelessness demonstrating a positive association between the amount of service use and the achievement of positive results on housing and other outcome domains (Morse et al. 1994; Pollio et al., 1997; Schumacher et al., 1995). Cohen et al. (1993) showed that higher intensity services for homeless persons with concurrent disorders predicted both improved housing and sobriety outcomes. Caslyn and Winter (2002) identified the positive effect of professional support on days in stable housing.

The positive results of intensive treatment for this vulnerable population are of special interest in view of recent funding in Ontario for an expansion of ACT teams across the province. Adequate treatment of this population in urban areas seems to demand the availability of intensive, integrated clinical services, such as those provided by the ACT and ICM case management models. This investigation found, however, that the ICM program was able to achieve this level of service intensity only after integrating its services with another agency. The *ACCESS* demonstration project found that such integration was difficult to attain in the U.S. This may not be the case in the more highly developed Canadian health care system. More research is required in Canada on the feasibility of systems integration and the relative economic advantages of this approach to service delivery compared to ACT.

The inclusion of multiple subjective indicators of community adjustment in this study is an important indication of the recent paradigm shift in mental health research. The Ontario Ministry of Health and Long-Term Care (1999) now promotes the use of quality of life and wellness indicators in program evaluations in addition to objective measures of symptomatology and hospitalization usage. According to Mirin and Namerow (1991):

> The assumption that symptom relief, reduction in the frequency of episodes of illness and improvement in functional adaptation...mean that quality of life has been enhanced may at times be unwarranted. ...Emphasis should be placed not only on level of clinical symptomatology or pathological behaviour, but also on the functional integration of the patient into his or her occupational, social and cultural milieu (pg. 1007).

Recent studies have investigated intervention effects on subjective quality of life and social adjustment outcomes. This clinical trial appears unique in the research literature as it broadened the range of functioning domains to include self-report indicators of symptom distress and empowerment. These subjective assessment measures yielded important information about the meaning of housing outcomes to the participants in this study as well as the relative impact of ACT and ICM services on their lived experience.

The results showed that both case management programs were equally successful at improving their clients' psychological distress, social adjustment, and sense of self-efficacy, or empowerment. Research reviews of ICM and ACT studies consistently commented on the limited effects of these models on areas of client functioning. The adaptation of the case management programs in the current investigation to include PSR and recovery principles may be a key factor behind their strong impact on these domains. Future research should analyze the effects of recent philosophical reorientation in the mental health field towards consumer-oriented approaches emphasizing client strengths and goals. Bond (1994) advised clinicians, policy-makers, and researchers to respect and act upon consumers' views of effective and appropriate services and desirable outcomes. Consumers have consistently emphasized the importance of leading decent, normal lives.

> Safe, pleasant and affordable housing, well paying and fulfilling jobs, friends...to be treated with dignity and respect, to have control over their lives and to have genuine choices. They want to feel good about themselves and to have the opportunity to achieve the things that all of us do (Bond, 1994: 490).

Attention must be paid not only to mental health needs, but also to broader housing and adjustment issues that affect the quality of life of persons with concurrent disorders living in the community.

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