

**The Relationship between the Vocational Components
of Assertive Community Treatment Programs
and Clients' Productivity Levels**

By

HEATHER LISA MCLEAN

**A thesis submitted to the School of
Rehabilitation Therapy in conformity with
the requirements for the degree of Master of Science**

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ABSTRACT

Heather Lisa McLean. *The Relationship Between Assertive Community Treatment Programs that Provide Access to Either Vocational Specialists or to Generalists with Vocational Training and Clients' Productivity Levels.*

Assertive Community Treatment (Act) is a popular mental health model. This study examined the relationship between ACT programs that provided access to either vocational specialists or to generalists with vocational training and clients' productivity levels

Recall time diaries were used to gather information on daily activities for 27 participants. Activities were coded as sleep, personal care, leisure, or productivity. Results showed that clients with access to vocational specialists spent significantly more time in productivity and less in sleep than those with access to generalists ($p < .05$).

When the samples were combined for comparison to the general population findings showed that study participants spent significantly more time in less satisfying activities, including passive leisure and sleep ($p < .05$). Study participants spent significantly less time in highly satisfying activities, including productivity ($p < .05$). These results showed the productivity levels of ACT clients in this study were alarmingly low and need to be addressed by ACT staff.

ABSTRACT

Heather Lisa McLean: *The Relationship Between the Vocational Components of Assertive Community Treatment Programs and Clients' Productivity Levels*. M.Sc. thesis, Queen's University at Kingston, June, 1999

Assertive Community Treatment (ACT) is an intensive and continuous treatment and rehabilitation service intended to enhance the community adjustment levels of adults with severe psychiatric disorders. The main objective of this quasi-experimental study was developed based on the reported finding that productivity is associated with increased community adjustment for this population. The objective was to examine the relationship between the vocational components of ACT programs and clients' productivity levels. The Community Integration program (CIP) provided access to vocational specialists on site through its' parenting agency and the Assertive Community Care Team (ACCT) program provided access to occupational therapists with vocational training.

Daily time use data were gathered from 27 clients through administering recall time diaries to obtain information on activities that occurred on the prior day. Data related to the amount of time clients spent in personal care, productivity, leisure, and sleep, and their subcategories. Independent t-tests showed ACCT clients ($n = 12$) spent significantly more time in productivity than CIP clients ($n = 15$) and less time in sleep ($p < .05$).

With the two ACT groups in this study collapsed, the data were compared to findings from other studies. One sample t-tests revealed that participants in this study spent significantly less time in productivity ($p < .05$), while spending more in sleep and leisure ($p < .05$), than the general Canadian adult population. However they devoted similar amounts of time in sleep and leisure to other individuals with severe psychiatric disorders who were enrolled in a day program.

Results suggest that in ACT programs without a dedicated vocational specialist clients spend extremely little time in productivity, in comparison to the general Canadian population. Given the low productivity levels there is a need for further research on modifications to ACT components in order to enhance community adjustment.

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CHAPTER 1: INTRODUCTION

1.1 General Introduction

This thesis examined the relationship between the vocational components of Assertive Community Treatment (ACT) Programs and clients' productivity levels.

Clients of ACT programs have severe and persistent psychiatric disorders, including schizophrenia, bipolar disorders, and major depression, as well as long histories of poor community adjustment. The goal of ACT is to assist clients in developing and maintaining a satisfactory level of community adjustment. In order to achieve this goal, ACT utilizes a community based team that assumes full responsibility for providing a complete range of treatment, rehabilitation, and support services to its' clients (Burns & Santos, 1995; Drake & Burns, 1995; State of Rhode Island, Department of Mental Health, Retardation, & Hospitals, 1992).

Studies reporting on the effectiveness of ACT in meeting the goal of enhanced community adjustment have typically measured success based on the following clinical outcomes: a decrease in the number of days hospitalized and psychiatric symptoms (Essock & Kontos; 1995; Lachance, Santos & Burns, 1994; Lafave, de Souza & Gerber, 1996; McGrew, Bond, Dietzen & Slayers, 1994; Scott & Dixon, 1995); an increase in feelings of control over life (Lafave et al., 1996); independent living status (Essock & Kontos, 1995; Lafave et al, 1996; Scott & Dixon, 1995); and treatment compliance (Scott & Dixon, 1995). These measures of the success of ACT are based primarily on clinical effects and have provided a limited view of the community adjustment experienced by clients.

Several studies that have reported higher levels of community adjustment of ACT clients have been based on the examination of clients' employment status (McFarlane, Dushay, Stastny, Deakins & Link, 1996; McGrew, Bond, Dietzen, McKasson & Miller, 1995; Stein & Test, 1979). However since many individuals with severe psychiatric disorders are unlikely to function at a competitive level of employment (Russert & Frey, 1991) "employment status" as an outcome measure of ACT provides only limited information about levels of community adaptation and adjustment. For many individuals with severe psychiatric disorders competitive work may be an unattainable goal for a variety of individual level and/or system level reasons. At the individual level, the person may lack work experience, experience a reoccurrence of symptoms, or suffer from disabling side effects associated with medication (Russert & Frey, 1991). At the system level several factors have been identified as barriers to employment for an individual with severe psychiatric disorders including: (1) hiring policies that reflect workplace discrimination (Clark, 1995a; Hatfield & Lefley, 1993b); (2) financial disincentives to work (Clark, 1995a; Clark, 1995b; Scheid & Anderson, 1995; Warner & Polak, 1995); and (3) the ineffectiveness of the evaluation of clients' vocational potential in vocational rehabilitation programs (Noble, 1998). Once an individual attains competitive work, the structure of the system may prevent the person from being successful in the acquired job. This may be the case if: (1) the client is placed on a job that lacks meaning to that client (Bond & Boyer, 1988); (2) the job involves work activities that have been associated with an increased stress level for individuals with severe psychiatric disorders (Scheid & Anderson, 1995); and (3) if rehabilitation workers set work expectations for clients instead of allowing client self-determination (Bell & Lysaker, 1996).

The concept of productivity is perhaps a more useful outcome measure of community adjustment for this program. In addition to paid work, productivity incorporates other activities including unpaid work (housework and related activities), volunteer work, educational activities (Statistics Canada, 1995), and day program activities. These productive activities are all considered “work” activities since they enable an individual to provide support to the self, family, and society, through the production of goods and services (Canadian Association of Occupational Therapists, 1991). Productivity, defined in this manner, captures the richness and meaning associated with work related outcomes and provides a more comprehensive measure of community adjustment.

Productivity has been associated with an increase in community adjustment. For example, Juster, Courant & Dow (1985) found that the satisfaction experienced through participation in work and related activities provides most individuals with enhancements in well-being. For people with severe psychiatric disorders productivity also leads to improvements in well-being as their satisfaction ratings regarding work are similar to those in the general population (Weeder, 1986). In addition, it has been found for individuals with severe psychiatric disorders that the more time that is spent in work and related activities the greater the reduction in symptoms (Bell, Lysaker & Milstein, 1996).

1.2 Background for the Study

1.2a ACT Model in Mental Health Care

The ACT model was developed in the early 1970's in response to the limitations associated with short-term hospitalization as a method of treatment for individuals with severe psychiatric disorders. The limitations of short-term hospitalization were identified by Stein & Test (1979) and included the following: (1) in-patient treatment had an insignificant impact on post-hospital community adjustment, (2) the greater the number of times clients had been hospitalized the higher the likelihood they would return to the hospital, and (3) continued use of the hospital decreased the pressure for community agencies to develop non-hospital programs for these individuals.

ACT is designed to overcome these limitations and to effectively meet the needs of clients that other community based health service programs had failed to effectively address (See appendix A). In the ACT model, all services that are provided to clients are intended to help them manage their illness in order to enhance community adjustment (Drake & Burns, 1995). ACT, as described by the founders of this model (Stein & Test, 1980), incorporates several components that are considered critical to its' success in increasing the extent of community adjustment for clients. The program is designed so that all required services are provided by a multidisciplinary team. The services should be made available 24 hours a day, 7 days per week, for as long as clients need them. Services must be assertive, individualized, and intensive, with staff following clients' progress to ensure that the services are suited to clients individual and changing needs. Clients should be taught skills in the natural environment in order to enhance the

likelihood that the skills will survive and be generalized, and they should be given assistance in finding a job, carrying out activities of daily living, and managing medication. In addition, an optimally supportive environment is created and maintained for clients by having ACT staff work directly within communities with its' members and clients' families. For example, ACT staff work with families to break clients' pathological dependency ties, which in turn, encourages client growth towards greater autonomy (Stein & Test, 1979). Also, community members are educated regarding clients' symptoms so that they can react to the clients in the same manner as they would respond to other community members (Stein & Test, 1979).

Since its' development ACT has become one of the most researched and disseminated mental health service delivery models for individuals with severe psychiatric disorders (McGrew et al., 1995). This model has recently been considered as a mental health service model of choice by the Ontario Ministry of Health (Ontario Ministry of Health, 1998) and is becoming a widely accepted international approach to mental health care (Hambridge & Rosen, 1994).

Modifications to components of the standard ACT model have developed, however, as the model has been replicated and applied to different settings (Deci, Santos, Hiott, Schoenwald & Dias, 1995; Essock & Kontos, 1995, McGrew et al., 1994). The exact nature of these modifications and their impact have been unexplored and reflect how little is known regarding which program components are associated with reported gains in functioning (Essock & Kontos, 1995). Even ACT experts have been found to disagree regarding operational definitions of specific ACT components, such as ideal team size, team operation, and team composition (McGrew et al., 1994). In some instances

modifications to the standard ACT components may either sacrifice the degree of success associated with the model through excluding an essential component or enhance it through reducing program costs without decreasing treatment quality (Essock & Kontos, 1995).

With respect to team composition, it has been found that wide agreement does not exist between ACT experts regarding whether a vocational specialist should be an essential part of the team, while there is general consensus that clients should be given assistance in finding jobs (McGrew et al., 1994). However it has been found that in ACT programs that incorporate a vocational specialist the number of individuals who are either employed or involved in vocational interventions is significantly increased (Russert & Frey, 1991). The reported success of ACT in enhancing work outcomes (Russert & Frey, 1991) has been attributed to the variety of work options that are made available to clients depending on their individual needs. Russert & Frey (1991) described the types of work options that should be made available in ACT programs. They reported that work may involve direct placement (competitive employment), supported employment (community placement) or prevocational employment (least independent including volunteer work), with ongoing reassessments so that any changes in the clients' work abilities and desires are reflected in the work settings. This system has been reported to offer each client the maximum opportunity to progress to competitive employment but to also give each client the opportunity of continuing non-competitive work if it is more suited to the client (Russert & Frey, 1991). Thus the inclusion of a vocational specialist in ACT is expected to enhance the likelihood that all clients, regardless of their abilities, will spend more time in productivity.

Since the goal of ACT is to enhance the community adjustment levels of clients (State of Rhode Island, Department of Mental Health, Retardation, and Hospitals, 1992) and productivity has been associated with increased community adjustment levels for individuals with severe psychiatric disorders (Bell et al., 1996; Dow & Juster, 1985; Hatfield & Lefley, 1993a; Robinson, 1988) it is essential that outcome measures of the success of ACT programs include productivity. No studies could be found in the literature that have examined the relationship between the components of ACT programs and productivity. This thesis, therefore, poses the following question: *“What is the relationship between the vocational components of ACT programs and clients’ productivity levels?”*

The remainder of this chapter includes background information pertaining to the above question. Chapter 2 consists of a literature review of research related to this study, Chapter 3 incorporates a methodology section, and Chapter 4 contains a summary of the results of this study. A discussion of the results is found in Chapter 5.

1.2b The Larger Study “Variations in ACT

This thesis was part of a larger ongoing study titled, “Variations of Assertive Community Treatment: a Study of Approaches and Outcomes of Four Teams in South Eastern Ontario” (Krupa, Eastabrook & Gerber, 1997). A principle investigator associated with the larger study on ACT used two standardized fidelity measures in order to determine the extent to which local ACT programs, including those that are the basis of this thesis, adhered to the components incorporated in the standard ACT model developed

by Stein & Test (1979) and to describe the nature of any modifications to the standard model. The two fidelity measures that were utilized for this study included the Index of Fidelity of ACT (IFACT) (McGrew et al., 1994) and the Critical Components of ACT Interview (CACTI) (McGrew & Bond, 1995).

Fidelity was measured for the ACT Programs evaluated in this thesis, including the Community Integration Program (CIP) and the Assertive Community Care Team Program (ACCT). These two ACT programs were selected for study from the four involved in the larger study because they were believed to service relatively similar populations and were conveniently located in near proximity to the current investigator. The overall fidelity findings suggested that both programs resembled the standard model.

Specifically, the components of the CIP program that were similar to the standard model are discussed below.

- (1) The ACT team was multidisciplinary
- (2) The ACT team functioned as the primary therapist
- (3) Caseloads were shared among ACT staff
- (4) ACT staff were available 24 hours per day
- (5) Treatment occurred in vivo more frequently than in the office
- (6) Services were not time limited

The components of the ACCT program that followed those of the standard model are presented below.

- (1) The ACT team was multidisciplinary
- (2) The ACT team functioned as the primary therapist
- (3) Caseloads were shared among ACT staff

- (4) ACT staff were available 24 hours per day
- (5) Most contacts with clients occurred in vivo
- (6) Services were not time limited

Both the IFACT and CACTI were also useful in providing an indication of the extent to which local ACT programs adhered to the vocational component of the standard ACT model. The IFACT accomplished this by examining the amount of assistance that ACT staff gave clients in finding jobs and comparing it against a set standard (McGrew et al., 1994). The CACTI involved an interview where ACT personnel were asked to rate the statement "vocational specialist on the team" as either very, mostly, somewhat, or not at all accurate, in describing their program. If this item was rated as inaccurate then the staff were asked to estimate the number of hours per week that a vocational specialist was available as a consultant (assuming 50 clients are involved). Again, the results were compared against a set standard (McGrew & Bond, 1995).

The vocational component of ACT programs should conform as closely as possible to this standard: "The program should have among the staff individuals who are qualified to provide work and related services to clients" (Ontario Ministry of Health, 1998; Russert & Frey, 1991). These qualified individuals, otherwise known as employment specialists, are responsible for addressing employment and daily structure issues in every client's treatment plan (Ontario Ministry of Health, 1998). Employment specialists involved in ACT programs are responsible for assessing the client's vocational strengths and deficits, developing individualized treatment plans that match the client's vocational needs, tailoring the job to meet the client's needs, monitoring the client's vocational functioning, and reassessing the client's vocational state for changes in goals or work

performance (Russert & Frey, 1991). While the IFACT and CACTI are useful indicators concerning the availability of vocational specialists one limitation of these measures is that they do not deliver information concerning the nature of services provided by vocational specialists.

The application of the IFACT and CACTI indicated that although both programs followed the standard ACT model there was variability between the vocational components of the two programs. Additionally, the vocational components of both of the programs were found to represent modifications of the standard ACT model. These modifications are elaborated on below.

Both programs differed from the standard model in that there was no dedicated team member who functioned as a vocational specialist who was responsible for providing work related services. However both programs had access to a person who was able to provide vocational consultation to clients. Although both programs incorporated a vocational component to some degree these components differed with respect to the extent of fidelity to the standard vocational component. The vocational component of the CIP program had greater fidelity than the ACCT program to the standard vocational component. This component of CIP included client access by a referral process, through it's parent agency, Kingston Psychiatric Hospital, to designated vocational services where staff were specified as vocational specialists and available on the same site. The aim of the vocational services was to increase meaningful employment opportunities for clients. Clients in the CIP program were provided with access to a day program, individualized employment services (e.g.: supported employment), and affirmative businesses that

provided paid work opportunities (e.g.: consumer run car wash). The CIP program and vocational services were located at the same site.

ACCT program clients had access to occupational therapists who primarily performed the generic functions of case managers on the team, including the provision of vocational services when requested. However, there were no hired, dedicated, vocational specialists. The vocational component of the ACCT program also included access, through its' parent agency, Kingston Friendship Homes, to a day program/drop in centre. The objective of this day program was to provide community support. The day program consisted of a variety of structured activities and events such as meals, games, field trips, cooking, computer classes, and so forth. It also involved a limited number of work opportunities such as canteen work. The ACCT site was not located at the site of its' parent agency.

CHAPTER TWO: LITERATURE REVIEW

Relevant background literature provided in this chapter addresses the following : A description of ACT as a mental health service model; problems with outcome measures of past ACT studies; the appropriateness of using productivity as an outcome measure of ACT success; a description of the factors that influence productivity for individuals with severe psychiatric disorders; and the rationale for collecting daily time use data to measure productivity. The theoretical frameworks for the study and study objectives are also presented in this chapter.

2.1 ACT as a Mental Health Service Model

The standard ACT model, developed by Stein & Test (1979), was designed so that an optimally supportive environment was created to meet clients' needs more effectively than alternative methods of treatment. In meeting clients' needs ACT staff worked with clients, clients' families, and the community. The benefits experienced by clients, in areas identified in the mental health literature, were found to be less for those who had been hospitalized (Lafave et al., 1996; Stein & Test, 1979) and those who were involved in a community based mental health program (Essock & Kontos, 1995; Scott & Dixon, 1995) when compared to ACT clients.

2.1a In Vivo Treatment

Stein & Test (1979) reported that ACT staff need to work directly with the client in the client's natural environment to encourage participation in a full schedule of daily living activities. The client is taught daily living skills in the community, given sustained and intense assistance in finding a job, and aided in the constructive use of leisure time and development of social skills. Frequency of contact between the staff and client may be intense, initially, in order to promote the client's participation in community activities or events. However, the extent of contact between staff and client is gradually reduced according to the client's progress.

2.1b Work with the Client's family

Stein & Test (1979) proposed that ACT staff need to involve a client's family in the treatment process. They suggested that this is essential to enhancing the client's level of community adjustment because pathological dependency ties to the family are common for individuals with severe psychiatric disorders, and these ties frequently contribute to the problems the client experiences in adjusting to community living. Staff encourage family members to promote the client's autonomy and offer the family support.

2.1c Work with the Client's Community

Stein & Test (1979) recommended that ACT staff speak to relevant community agencies (e.g.: landlords, police) so that staff are knowledgeable of the client's situation

in the community. This knowledge helps prevent further hospitalizations for the client and permits staff to establish close working relationships with community members. ACT staff are responsible for describing the program to relevant community members and for telling them to respond to the client in the same manner as any other community member. If any community member should feel that help is needed in dealing with the client (s)he is encouraged to call the ACT program for help at any time.

2.1d Findings from Past Studies

To date ACT studies have reported on the program's success based on one of the following methods: (1) a comparison of outcomes between ACT program clients and hospitalized clients (Lafave et al., 1996; Stein & Test, 1979), (2) a comparison of outcomes between ACT program clients and clients of other community based programs (Burns & Santos, 1995; Essock & Kontos, 1995; Scott & Dixon, 1995), and (3) a comparison of outcomes where ACT clients served as their own controls (a pre-post treatment study) (Dincin, Wasmer, Witheridge, Sobeck, Cook & Razzano, 1993; Hambridge & Rosen, 1994).

All of these methods for examining the success of ACT programs have led to the acceptance of specific conclusions that are favourable regarding the benefits that clients experience. The most prevalent outcomes are described below:

(1) The finding that ACT leads to a reduction in the number of days hospitalized has been widely replicated in ACT studies. This finding regarding days hospitalized is persistent regardless of whether ACT clients are compared to clients who had been

hospitalized (Lafave et al., 1996; Stein & Test, 1979), to case management clients (Scott & Dixon, 1995), or only to clients enrolled in case management programs that were identified as high quality (Essock & Kontos, 1995). This finding has also been consistently reported when ACT clients serve as their own controls (Dincin et al., 1993; Hambridge & Rosen, 1994).

(2) The finding that ACT clients are likely to spend more time living in the community has also been replicated. When compared to clients of high quality case management programs ACT clients are likely to spend significantly more time in stable living situations in the community and less time homeless or in temporary housing (Essock & Kontos, 1995). When compared to clients who had been hospitalized, more of the ACT clients live in community settings (Lafave et al., 1996). ACT clients also spend a greater extent of time in independent living situations in the community and less time in psychiatric institutions when compared to clients who had been hospitalized and were not enrolled in ACT (Stein & Test, 1979).

(3) The finding that ACT clients are more likely to experience a reduction in symptoms has been widely reported. The findings regarding symptomatology is consistent independent of whether ACT clients are compared to clients who had been hospitalized and not enrolled in ACT (Burns & Santos, 1995; Stein & Test, 1979) or to clients who had received case management services (Scott & Dixon, 1995).

While ACT programs demonstrate significantly positive effects in certain areas of clients' lives, including reduced number of days in hospital, increased time spent living in the community, and decreased symptomatology, the effects of these programs in other

areas are unclear. Some of the areas in which the impact of ACT programs is unclear include the following:

(1) Findings regarding the impact of ACT programs on clients' subjective quality of life have been mixed. When subjective quality of life outcome measures were compared for ACT clients prior to program enrollment and at three six-month intervals it was found that clients experienced continuous significant improvements (McGrew et al., 1995).

When ACT clients were compared to clients who had been hospitalized one study found that subjective quality of life outcomes were higher for ACT clients (Stein & Test, 1979). However, another study that compared hospitalized and ACT clients found that subjective quality of life outcomes were not significantly different between the groups (Lafave et al., 1996). Furthermore, a study that presented a review of research in order to make comparisons between ACT and case management programs reported that conclusions could not be made regarding the program that was more effective in enhancing subjective quality of life (Scott & Dixon, 1995). They reported that research on ACT that examines quality of life outcomes has been mixed.

(2) Findings pertaining to the impact of ACT programs on employment situation have been mixed. Only two ACT studies that addressed employment were found. When compared to clients who had been hospitalized, ACT clients were found to spend significantly less time unemployed, more time in sheltered work, and to earn more money when engaged in competitive work (Stein & Test, 1979). However, the same study found that the amount of time spent in competitive employment situations did not differ significantly between the two groups (Stein & Test, 1979). When ACT clients served as

their own controls it was found that ACT programs did not significantly change clients' employment status (McGrew et al., 1995).

2.2 Limitations of Past ACT Studies

ACT studies to date have used predominately clinical measures and competitive work outcome measures, in order to determine the success of ACT programs in meeting the goal of enhanced community adjustment. These measures can be criticized, however, as providing a limited view of clients' levels of community adjustment.

Most ACT studies have based the success of ACT programs on improvements in clients' clinical outcomes. Some of these outcomes were described in section 2.1 and they include a decrease in days hospitalized and symptomatology, and an increase in time spent living in the community. These outcomes suggest that ACT programs significantly enhance clinical functioning for clients, but they do not provide enough information pertaining to clients' lives to serve as appropriate measures of community adjustment levels.

Employment data indicate that only 15% of individuals with severe psychiatric disorders are engaged in full or part time competitive work (Russert & Frey, 1991). It has been reported that clients of ACT programs that include a dedicated vocational specialist are employed at a significantly higher rate than the national average for individuals with severe psychiatric disorders, with 80% involved in vocational interventions and 40-50% of the 80% total employed (in prevocational, supported, and competitive work) (Russert & Frey, 1991). However, studies of ACT programs that do not include a dedicated

vocational specialist as an essential team member indicate that competitive employment outcomes specifically may not be much higher than the national average for clients (McGrew et al., 1995; Stein & Test, 1979).

The results of a study on an ACT program that lacked a vocational specialist showed that the amount of time ACT clients spent competitively employed did not differ significantly from clients who had been hospitalized (Stein & Test, 1979). Another ACT study (McGrew et al., 1995) reported on the competitive employment levels for clients who were enrolled in ACT programs at six sites, that were based on variations of the standard ACT model and did not include vocational specialists. The results showed that the number of clients involved in competitive employment did not increase significantly at any of the sites when compared to the employment statistics for the same group of clients prior to program enrollment.

Since the employment rate for individuals with severe psychiatric disorders is so low and agreement does not exist between experts regarding the need to include a vocational specialist as a team member (McGrew et al., 1979) the findings from the studies just mentioned (McGrew et al., 1995; Stein & Test, 1979) suggest that the majority of ACT clients are not competitively employed at any time. Due to this lack of participation in competitive employment, additional outcome measures are needed in order to gain an adequate indication of clients' levels of adjustment to community living.

2.3 Productivity as a Measure of Community Adjustment

Productivity provides a measure for community adjustment by revealing participation in a wider variety of work related activities that comprise it – including paid work, housework, education, volunteer work, and day program activities. Examination of clients' productivity levels, defined in this way, permits a more comprehensive measure of community adjustment levels than previously used measures. Participation in productive (or work) activities has been found to increase community adjustment levels for clients by improving well-being (Dow & Juster, 1985; Juster et al., 1985; Robinson, 1988). This enhancement in well-being is partially attributed to an increase in satisfaction levels (Dow & Juster, 1985; Hayes & Halford, 1996; Juster, 1985c; Leete, 1989; Scheid & Anderson, 1995). It has been reported that work is rated as one of the most satisfying activities for individuals with severe psychiatric disorders (Scheid & Anderson, 1995) and those without severe psychiatric disorders (Dow & Juster, 1985; Robinson, 1988). The increase in well-being for individuals with severe psychiatric disorders is also accounted for by the decrease in symptoms experienced (Bell et al., 1996; Leete, 1989; Scheid & Anderson, 1995). It has been found that the more time that is spent in work activities the greater the reduction in symptoms for this population (Bell et al., 1996).

Some factors that have been reported as accounting for the enhanced levels of satisfaction and decrease in symptoms experienced by clients involved in productivity include the following: (1) work activities provide daily structure, (2) work activities promote feelings of community acceptance, (3) work activities create a sense of identity,

and (4) work activities enhance community adjustment by increasing time spent with other community members.

2.3a Productivity provides Daily Structure

Lack of daily structure is a problem experienced by a large percentage of individuals with severe psychiatric disorders (Delespaul & deVries, 1992b; deVries & Delespaul, 1992a; Scheid & Anderson, 1995). The structure that is provided by productivity has been reported to serve to control clients' symptoms through increasing the predictability of the events for the day (Leete, 1989). Additionally, participation in structured productive activities has been found to enhance satisfaction levels by permitting clients to feel and act as if they have something to do during the day (Scheid & Anderson, 1995).

2.3b Productivity Promotes Feelings of Community Acceptance

Participation in productivity has been reported to enable individuals to provide support to the self, family, and society, through the production of goods and services (Canadian Association of Occupational Therapists, 1991) Thus, the individuals become contributing members within the community. This has been found to increase clients' levels of acceptance in the community and decrease the extent of stigma that they experience (Leete, 1989). By engaging in productivity, it has been reported that clients experience increased feelings of accomplishment, pride, and happiness, and an enhanced level of self-esteem (Leete, 1989; Lysaker & Bell, 1995; Scheid & Anderson, 1995). This

likely results in increased levels of satisfaction. Additionally, Lysaker & Bell (1995) found that the increased level of self-esteem provides clients with greater insight into their illness. They suggested that this insight results in clients' self-acceptance of their unusual thoughts and behaviors and, consequently, greater compliance to treatment and willingness to recognize and admit to the symptoms signaling relapse.

2.3c Productivity Creates a Sense of Self Identity

Individuals with severe psychiatric disorders often see themselves only as patients. The "patient identity" fosters an image of oneself as useless, inadequate, and incompetent (Anthony, Cohen & Danley, 1988). This leads to low levels of self-esteem. A new identity is created for clients through the provision of opportunities for successful work experience (Anthony et al., 1988; Hatfield & Lefeley, 1993a). Transitional and supported employment settings can provide opportunity for creation of a new identity where individuals see themselves as productive people (Anthony et al., 1988). This creation of a new meaningful identity is important in order for clients to recover from the disorders (Anthony et al., 1988; Hatfield & Lefley, 1993a) and it increases their satisfaction levels through enhancing productivity time (Weeder, 1986).

2.3d Productivity increases Time with other Community Members

Participation in productivity typically increases the amount of time that is spent with other community members. The results from several studies comparing unemployed and

employed individuals found that the employed group spent more time with others outside of the home, while the unemployed group spent more time during the day alone at home (Delespaul & deVries, 1992b; deVries & Delespaul, 1992a; Hayes & Halford, 1996). This is important since it has been reported that individuals rate activities that involve personal interaction as more satisfying (Juster, 1985c). It has also been found that spending time alone can increase symptomatology for some individuals with psychiatric disorders (deVries & Delespaul, 1992a). They present a compelling case study that illustrates this point:

“This study presents a 53 year old married woman who was seen in ambulatory care for endogenous depression with psychotic features. Time use data were collected and time of the day was examined as a variable. It was found that the participant became most depressed when alone at home after 8:00 p.m. and that this was likely a prerequisite to the depressive episode that she was experiencing.” (p.106)

2.4 Factors Influencing Productivity for the Psychiatric Population

There are a multitude of factors that contribute to the low productivity levels of individuals with severe psychiatric disorders. The low competitive employment figures for individuals with severe psychiatric disorders (Russert & Frey, 1991) suggest that barriers to employment exist for these individuals. Some of these are individual-level barriers while others exist at the system-level.

2.4a Individual-Level Barriers to Employment

(1) **The individual may lack work experience** (Russert & Frey, 1991; Scheid & Anderson, 1995). Due to the time of the onset of the disorder normal vocational

development is often disrupted for individuals. Scheid & Anderson (1995) found that for nine of the ten clients that they interviewed the initial onset of the disorder occurred in their early twenties and resulted in the disruption of work. This has been reported to result in a limited or non-existent work background for the individuals, poor work habits, and limited skill development (Russert & Frey, 1991).

(2) The individual may experience a reoccurrence of symptoms while at work

(Lysaker, Bell & Bioty, 1995; Rutman, 1994). The nature of most severe psychiatric disorders is episodic and unpredictable. The disorder can appear and disappear, moving with periods of stability, reoccurrences, and setbacks (Rutman, 1994). This has been found to create feelings of frustration and hopelessness within the clients, which affects their work capabilities (Rutman, 1994). Also, for individuals with severe psychiatric disorders who have high levels of cognitive impairments the likelihood of symptoms reoccurring and interfering with work is higher (Lysaker et al., 1995). Job options which are intended to be meaningful may be meaningless to these individuals possibly because it is difficult for them to conceptualize the meaningfulness of their work and thus it seems pointless (Lysaker et al., 1995). Consequently, they have been found to experience fewer clinical benefits from work rehabilitation (Lysaker et al., 1995).

(3) The individual may suffer from side effects of medication or not comply with the medication (Kirsh, 1996; Rutman, 1994; Scheid & Anderson, 1995). Clients with severe psychiatric disorders have been interviewed regarding issues of medication compliance and its' effects on work (Kirsh, 1996; Scheid & Anderson, 1995). Some of the

interviewed clients had reported that they lost jobs in the past because they had been non-compliant with their medications (Scheid & Anderson, 1995).

Pharmacological interventions are used to eliminate or reduce symptoms while not interrupting positive areas of functioning for the clients. However, side effects for clients can range from moderate to severe. Some of the side effects that have been reported include tremors, shuffling gait, drooling, restlessness, stiffness in facial muscles, light-headedness, blurred vision, low blood pressure, facial grimacing and twitches, loss of coordination, and swelling of limbs (Rutman, 1994). Other side effects noted include lack of energy and sleepiness (Kirsh, 1996). It has been found that the side effects may prevent clients from attaining or maintaining a job since they detract from individuals' appearances and behaviors (Kirsh, 1996; Rutman, 1994). Many of the clients who were interviewed reported that the side effects had resulted in an inability to perform any work related tasks as they had felt extremely slowed down, weak, and tired (Kirsh, 1996; Scheid & Anderson, 1995).

2.4b System-Level Barriers to Employment

(1) **Jobs frequently lack meaning for individuals with severe psychiatric disorders** (Bachrach, 1991; Bond & Boyer, 1988; Scheid & Anderson, 1995). The types of jobs held by individuals with severe psychiatric disorders are often low-skill entry level jobs (Scheid & Anderson, 1995). Entry level jobs may lack meaning to individuals if they possess a variety of skills, desires, and talents that need to be met through diverse work opportunities (Bachrach, 1991). By restricting work opportunities to unskilled jobs many

individuals may not be successful in remaining employed because their unique needs are not being met (Bachrach, 1991). Another widely used job option for these individuals is sheltered workshops. Such workshops have been found to be disliked by many individuals with psychiatric disorders because they involve low pay and monotonous work, and are stigmatizing to the individuals as the work is done in a segregated setting (Bond & Boyer, 1988). Individuals who are involved in skilled, more meaningful, work have been found to remain employed for longer periods of time (Jansen, 1988).

(2) Discrimination in the workplace (Clark, 1995a; Hatfield & Lefley, 1993b).

Individuals with severe psychiatric disorders may experience difficulty in obtaining competitive employment as some employers' hiring practices reflect discrimination and/or an unwillingness to make necessary workplace accommodations (Clark, 1995a; Hatfield & Lefley, 1993b). It has been found that many individuals with severe psychiatric disorders have stories of employer discrimination that they have personally encountered (Hatfield & Lefley, 1993b).

(3) Lack of economic incentives for working (Clark, 1995a; Clark, 1995b; Scheid & Anderson, 1995; Warner & Polak, 1995). Competitive work opportunities have been found to usually consist of low paying jobs for the majority of individuals with severe psychiatric disorders (Scheid & Anderson, 1995; Warner & Polak, 1995). Additionally, Warner & Polak (1995) reported that the amount of pay received from their jobs usually fails to enhance their economic status, since part of the earnings is taken out of the disability financial benefits and there is a risk that they will lose their disability pensions

altogether. The results of one study showed that individuals who were competitively employed part time lost their social security benefits, food stamps, and other sources of non-cash incomes, with the employed individuals having only slightly higher income than the unemployed individuals (Warner & Polak, 1995).

(4) Programs designed to assist individuals with severe psychiatric disorders are ineffective in terms of vocational improvements (Noble, 1998). An assessment of vocational rehabilitation programs in the United States showed that specialized services which are needed (i.e.: vocational rehabilitation counselor specialists) are under-purchased (Noble, 1998). Other state programs, including mental health agency programs and psychosocial rehabilitation programs, have been found to refer a very minimal portion of their consumers to the vocational rehabilitation agency (Noble, 1998). For example, American state mental health agency programs referred 19.8 per 100, 000 population federally to the vocational rehabilitation agency in 1993. As well, it has been found that the evaluation of individuals' vocational potential is based on the administration of paper and pencil tests even though direct on the job placements are the best predictors of vocational success for this population (Noble, 1998). These program inefficiencies likely contribute to the finding that the number of individuals with severe psychiatric disorders who obtain competitive employment is low.

(5) Expectations placed on individuals with severe psychiatric disorders by rehabilitation staff workers (Bell & Lysaker, 1996). When planning a work program for these individuals staff frequently set the work expectations for clients. However self

regulation has been found to lead to more hours being spent in productivity and a greater decrease in symptomatology than an imposed work expectation level for individuals with severe psychiatric disorders (Bell & Lysaker, 1996).

(6) Factors at the workplace that increase stress levels of individuals with severe psychiatric disorders (McCory, 1988; Scheid & Anderson, 1995). Regardless of whether individuals are employed full or part time, competitive employment may lead to an increased stress level for persons with severe psychiatric disorders (McCory, 1988; Scheid & Anderson, 1995). Some stress factors that have been noted by mental health clients include a fast paced and demanding work environment, critical and over concerned boss, work tasks that require much effort to meet the demands of others, and critical co-workers (Scheid & Anderson, 1995). The increased stress levels experienced by clients can lead to an increase in symptoms and termination of employment unless the issues at hand are dealt with immediately (McCory, 1988).

2.5 Daily Time Use as a Measure of Productivity for the Psychiatric Population

Daily time use studies aim to determine the amount of time that individuals allocate to the various daily living activities (Harvey & Singleton, 1989; Statistics Canada, 1995; Weeder, 1986). The results of daily time use studies are useful in examining community adjustment levels because the manner in which individuals spend their time affects their well-being through serving as a direct source of satisfaction (Dow & Juster, 1985; Juster, 1985c). Time use studies reveal the types of activities that a population of individuals

engage in throughout the day as well as the amount of time that they devote to these activities. These studies may also report the locations and social contexts in which the activities occurred. Time use studies have been conducted with the general Canadian population (Statistics Canada, 1995) as well as with populations of individuals with severe psychiatric disorders (Hayes & Halford, 1996; Weeder, 1986). Thus, the results of time use studies permit comparisons of time use patterns to be made for differing populations of individuals. This information allows the researcher to gain a fairly comprehensive picture of the extent of community adjustment achieved in the population under study in relation to other populations.

In examining daily time use patterns the activities reported for a 24 hour period can be categorized as personal care, sleep, leisure, and productivity (Statistics Canada, 1995). (See Appendix G for the complete coding scheme used in this study). Personal care activities refer to activities or tasks that are done routinely to maintain a person's health and well-being in the environment (Canadian Association of Occupational Therapists, 1991). These activities incorporate meals, washing, and other similar activities. It is important to ensure that individuals spend sufficient time in personal care activities as they are essential to daily life in the community. However, the extent of satisfaction received from engaging in these activities has been reported as low (Dow & Juster, 1985), partially because they involve little personal interaction (Juster, 1985c)

Sleep incorporates both essential (night) sleep and incidental sleep (naps). While essential sleep is important to maintaining one's health and well-being (Canadian Association of Occupational Therapists, 1991), naps have been found to provide little satisfaction to individuals (Dow & Juster, 1985).

Leisure activities are the components of life that are free from work and self-care (Canadian Association of Occupational Therapists, 1991). Leisure incorporates socializing activities (e.g.. Talking on phone), passive activities (e.g.. watching television), and active activities (e.g.. walking). Active leisure and socialization activities have been found to be among the most satisfying activities in which a person engages (Dow & Juster, 1985) as they usually involve personal interaction (Juster, 1985c). Alternatively, passive activities have been among the activities that individuals rate as least satisfying (Dow & Juster, 1985) because they involve little personal interaction (Juster, 1985c). Participation in leisure activities, specifically active leisure and socialization, would be expected to enhance community adjustment because they are highly satisfying to individuals (Dow & Juster, 1985).

Productive activities refer to those activities or tasks, labelled as "work", that are done to enable the person to provide support to the self, family, and society, through the production of goods and services (Canadian Association of Occupational Therapists, 1991). Productivity includes paid work, housework, volunteer work, education, and day program activities. Participation in productivity is expected to enhance community adjustment levels as work leads to an enhanced sense of well-being (Juster et al., 1985) through enhancing individuals' satisfaction levels (Dow & Juster, 1985; Hatfield & Lefley, 1993a; Juster, 1985c; Robinson, 1988).

2.6 Daily Time Use Patterns

Studies have reported the daily time use patterns for differing populations of individuals. The results from several of these studies are presented in this section.

2.6a Daily Time Use Patterns of the General Population

The daily time use patterns of a representative sample of about 9,000 Canadian adults, aged 15 and over, were investigated through the administration of a telephone survey (Statistics Canada, 1995). The survey was conducted over a 12 month period in 1992 and employed the yesterday diary method to examine how participants spent their time over a 24 hour period. The findings of this survey revealed that in general, adult Canadians spent 7.83 hours in sleep, 2.2 hours in personal care, 9.3 hours in productivity, and 4.55 hours in leisure. When leisure was broken down it was found that 2 hours were devoted to passive leisure, 0.82 to active leisure, and 1.68 to socializing.

2.6b Daily Time Use Patterns of People with Severe Psychiatric Disorders

There were only two studies found on daily time use patterns for individuals with severe psychiatric disorders (Hayes & Halford, 1996; Weeder, 1986). Of the two studies only one reported actual statistics for daily time allocation (Weeder, 1986). Weeder (1986) used a temporal questionnaire to examine daily time use patterns for adults with severe psychiatric disorders who were enrolled in a day program that provided vocational, recreational, social, and self-maintenance services, five days per week. The results of the

study revealed that the sample spent 9.1 hours in sleep, 4.4 hours in personal care, 2.4 hours in productivity, and 8.3 hours in leisure. When the sub-categories of leisure were examined it was found that the sample dedicated 5.3 hours to passive leisure, 0.98 hours to active leisure, and 2 hours to socializing (Weeder, 1986).

It is essential to note here that in the Weeder (1986) study, housework was included as a type of personal care whereas in the Statistics Canada (1995) study it was considered productivity. Such differences in coding schemes between time use studies can provide complications, and need to be considered when comparing findings between several time use studies.

2.6c Comparison of Findings

Hayes & Halford (1996) conducted a study to compare time use patterns for matched populations of individuals with severe psychiatric disorders, employed individuals without disorders, and unemployed individuals without disorders. The results showed that while there were differences between time use patterns of the unemployed group and the group with disorders there were also striking similarities. The daily activities to which these two groups allocated similar amounts of time significantly differed from the employed group in the following ways: during weekdays they spent more time at home alone and in passive leisure while spending less time in job related activities. The group with disorders differed significantly from the unemployed group in the following areas: they spent less time travelling, in active leisure, and socializing with others who were not family, while spending more time with family and sleeping.

2.7 Implications for Research and Research Question

The gaps in the research literature that were addressed in this study provide ACT researchers and clinicians with the opportunity to learn more about the levels of community adjustment achieved by clients of these programs. By utilizing time use diaries to measure productivity, more meaningful information on clients' community adjustment levels could be attained than that provided by the outcome measures used in past studies. This information could permit clinicians and researchers to make relevant alterations to the ACT programs that could benefit ACT clients by enhancing clients' productivity levels. Therefore, this study will address the following research question: *"What is the relationship between the vocational components of ACT programs and clients' productivity levels?"*

2.8 Study Framework

2.8a Theoretical Framework: Juster, Courant & Dow's Daily Time Use Model

Juster et al.'s (1985) conceptualization of the importance of daily time use data in determining well-being was selected as the theoretical framework for this study. Juster et al. (1985) based their framework on developments that had occurred in the theory and measurement of well-being. The framework (Juster et al., 1985) was intended to provide support for analyzing the generation and distribution of well being in a population through examining daily time use patterns and satisfaction levels. Daily time use patterns were considered appropriate indicators of well-being (Juster et al., 1985) because the

activities that individuals engage in are mediators between the actual state of the world and ultimate psychological well-being (or desired conditions). Juster et al. (1985) reported that there is a causal flow from resources (the current state of the world), to time allocation, to a changed state of the world, to changes in satisfaction levels reflected in changes to psychological outcomes and well-being. Figure 2.1 demonstrates this relationship between time use and well-being.

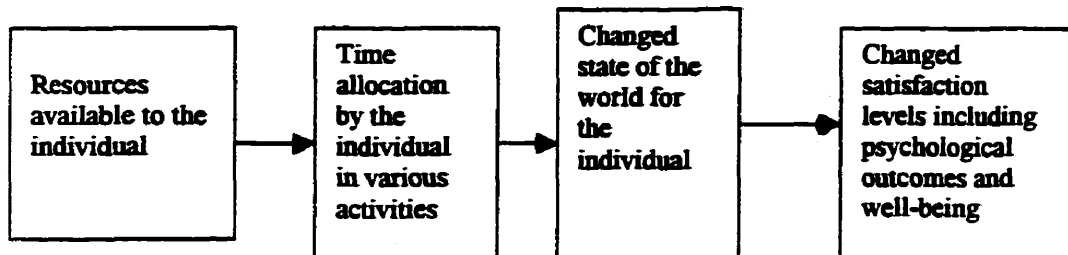


Figure 2.1:

Framework for the relationship between time use and well-being.

The measurable outcomes provided in the framework that was developed by Juster et al. (1985) include the following:

- (1) A measure of the amount of time spent in activities by individuals
- (2) A measure of the flows of goods that are either produced or used (e.g.: use of gasoline in a car or production of a home cooked meal). These flows always correspond with the use of time since some activity must be engaged in for goods to be used or produced.
- (3) A measure of direct subjective consequences from engaging in some activities and not others, termed “process benefits”. Process benefits are important to overall well-being because people have preferences about how their time is spent, independent of the

tangible outcomes of these activities. Thus, Juster (1985c) reported that certain activities are preferred because in the production and distribution of well-being there are certain sets of satisfactions generated by the activities themselves. Juster (1985c) reviewed time use studies that examined preference levels for activities. The findings showed that individuals had high preferences for certain types of productivity, mainly paid work and childcare, and for active leisure and socializing activities. The activities individuals preferred were found to typically involve personal interaction with others while those with lower preference rating did not involve personal interaction (Juster, 1985c). These activities included housework and passive leisure; with television viewing having noticeably low ratings.

(4) A measure of change brought about in the state of the world that responds directly to allocation of time. For example, health is influenced directly by the amount of time spent sleeping, eating, and in active leisure.

(5) A measure of subjective evaluation of the state of the world. Well-being is influenced by the state of the world, which may include air pollutants or income, that are consequences of previous time uses.

This study focused specifically on the first outcome measure identified by Juster et al.(1985) since it would have been too timely to examine all of the outcome measures. Additionally, the researcher felt that examining time use patterns was the most effective method for addressing the research question of this study. This study examined the amount of time spent in various daily activities and based conclusions regarding community adjustment levels on studies that have reported on the extent of preferences

for, or satisfaction gained from, participation in certain activities (Dow & Juster, 1985; Juster, 1985c).

2.8b Conceptual Framework: Psychiatric Rehabilitation

The conceptual framework for utilizing time use data to measure productivity in this study is summarized in Figure 2.2.

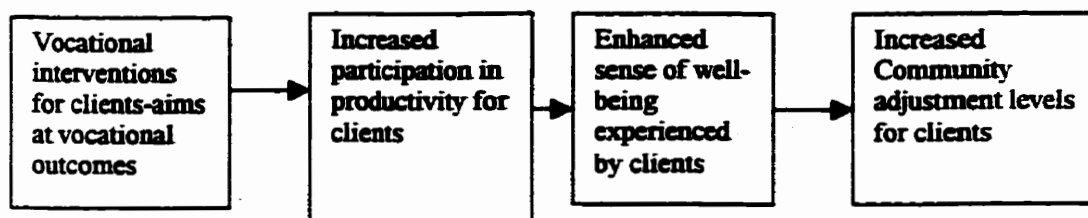


Figure 2.2:

Study Framework based on the Psychiatric Rehabilitation Model.

This framework is based on the Psychiatric Rehabilitation Model. The model recognizes work as integral to community adjustment (Cnaan, Blankertz, Messinger & Gardner, 1988; Neff, 1988) as work enhances overall levels of well-being (Juster et al., 1985; Scheid & Anderson, 1995;). The Psychiatric Rehabilitation Model asserts that it is important to address the worker role for individuals with severe psychiatric disorders (Cnaan et al., 1988). According to the Psychiatric Rehabilitation Model the “worker role” can be created or improved for individuals with severe psychiatric disorders through collaborating with a dedicated vocational specialist (Anthony et al., 1988). The vocational specialist can enhance productivity levels for the population of individuals

with severe psychiatric disorders, through intervention techniques, if the specialist possesses certain attributes (Anthony et al., 1988; McCory, 1988). Some of the attributes that have been reported include an understanding of the world of work, knowledge of community resources and opportunities, and an ability to get things moving (Anthony et al., 1988; McCory, 1988). Anthony et al. (1988) reported that the specialist must also be knowledgeable of the client population being served, vocational rehabilitation practices, research on vocational rehabilitation with individuals with severe psychiatric disorders, the functions of other disciplines that are involved with this group, and other work settings.

The Psychiatric Rehabilitation model postulates that a vocational specialist enhances productivity outcomes through overcoming individual-level barriers or system-level barriers to employment (Cnaan et al., 1988). At the individual-level the specialist may need to equip clients with relevant skills for holding a job (Cnaan et al., 1988). This is important since skills have been reported as a primary factor in determining vocational success (Jansen, 1988), and many of these individuals lack adequate work skills (Russert & Frey, 1991; Scheid & Anderson, 1995). The Psychiatric Rehabilitation Model employs educational therapy methods to assist clients in improving work skills and increasing psychological and social contact skills (Cnaan et al., 1988). Learning of these skills increases clients' problem solving abilities and thus reduces opportunities for failure and prevents clients from developing a fear of failure in the work place (Jansen, 1988). This leads to increased self-esteem, motivation, frustration tolerance, confidence, and reduced anxiety levels for clients, which positively influences the extent of success that they experience in work activities (Jansen, 1988).

At the system-level the vocational specialist may recognize that there is a need to change clients' environments in order to enhance participation in work activities. The Psychiatric Rehabilitation Model advocates for restructuring and re-educating the environment (Cnaan et al., 1988). This is essential since it has been reported that many efforts to achieve employment for this population that have focused on individual enhancements have resulted in low employment rates (Akabas, 1994). Through restructuring the environment the diverse skills and desires of clients could be reflected in work place settings (Akabas, 1994), resulting in an increased likelihood that clients would remain on the job (Jansen, 1988).

The empirical basis for the Psychiatric Rehabilitation Model was founded on the following research findings (Anthony et al., 1988, p. 62):

- (1) Measures of psychiatric symptoms do not predict vocational rehabilitation outcomes
- (2) Psychiatric diagnosis does not predict vocational outcomes
- (3) Measures of psychiatric symptoms do not correlate with a psychiatrically diagnosed person's skills
- (4) Measures of skills do predict vocational rehabilitation outcomes
- (5) Training in critical vocational skills do improve vocational rehabilitation outcomes

2.9 Study Objectives

The objectives of this study were formulated in order to examine the following research question, "*What is the relationship between the vocational components of ACT programs and clients' productivity levels?*". In addition the study attempts to gain a

better understanding of community adjustment levels of clients by examining how they spend their day.

The objectives of this study include the following:

- (1) To make decisions regarding two hypotheses: (1) Community Integration Program (CIP) clients will spend significantly more time in productivity than Assertive Community Care Team (ACCT) clients, and (2) CIP clients will spend significantly more time in paid work activities than ACCT clients. These hypotheses were developed due to the results obtained from the fidelity measures. The results showed that the vocational component of the CIP program had higher fidelity to the standard ACT model than the vocational component of the ACCT program.
- (2) To examine and compare time allocation over a 24 hour period for the major daily living activities engaged in by clients involved in this study. This is accomplished by comparing the amount of time spent in the various activities of daily life for CIP and ACCT clients, and by combining clients from CIP and ACCT programs to compare the amount of time spent in the subcategories of the major daily life activities for all individuals in this study (e.g.: time spent in active leisure vs. passive leisure).
- (3) To compare the findings of this study with other populations; specifically the general Canadian adult population (Statistics Canada, 1995) and a population of adults with severe psychiatric disorders who were enrolled in a day program (Weeder, 1986).

2.10 Study Justifications

This study provides researchers and clinicians of ACT with valuable information about the community adjustment levels of clients of these programs and the usefulness of daily time use as an outcome measure. Hopefully this information will promote future research on ACT to examine the effects on clients' productivity levels of modifying the standard vocational component.

CHAPTER 3: METHODS

3.1 Study Protocol

The protocol for this study was approved by the Queen's University Research Ethics Board in September of 1998.

3.2 Research Design

The non-equivalent posttest-only control group quasi experimental design (otherwise known as a static group comparison design) was utilized for this study. This design allowed the researcher to obtain posttest measures on control and experimental groups that were already in existence. The design was suited to this study because the study participants were enrolled in ACT programs prior to the onset of the study and were receiving ACT services at the time this study was conducted. Thus, randomization and the attainment of pretest measure scores was impossible.

In this study the experimental group consisted of clients in the Community Integration Program (CIP) program since there were dedicated vocational specialists available at the program site. The control group consisted of clients in the Assertive Community Care Team Program (ACCT) program as there was no dedicated vocational specialist available at the program site. The posttest measures included clients' daily time use patterns. More specifically, the amount of time spent in major time use categories, including sleep, leisure, personal care, and productivity, was examined. Furthermore, the

distribution of time among the subcategories composing those time use categories was also examined (See Appendix B for a complete list of these subcategories).

3.3 Setting and Population

This study was conducted in Kingston, Ontario, a southeastern community of approximately 140,000 people. Participants in the study were enrolled in one of two local ACT programs: the CIP program or the ACCT program. These programs were developed based on the original Assertive Community Treatment model, and as such are community based mental health service programs that service people with severe psychiatric disorders. The main difference between the two programs, of direct relevance to this study, is that clients in the CIP program have access to dedicated vocational specialists and a variety of vocational services on site through its' parent agency, Kingston Psychiatric Hospital. Clients in the ACCT program do not have access to a dedicated vocational specialist or such a comprehensive range of vocational services on site. Clients in ACCT do have access to two occupational therapists on site, who serve generalist functions on the team and are responsible for providing vocational services when they are requested. These clients also have access to a day program through the parent agency, Kingston Friendship Homes (See Appendix C for a more detailed comparison of the programs).

3.4 Participant sampling

In total a convenience sample of 27 participants from two local ACT programs was recruited for this study. This method was utilized because random selection procedures did not yield a large enough sample size for this study. Convenience sampling ensured access to as many people as possible for inclusion in this study. Individuals were eligible for inclusion if they met the following requirements:

- (1) They were living in the community environment.
- (2) They had a primary diagnosis of a severe psychiatric disorder.
- (3) They were fluent in English.
- (4) They had given written consent for participation in this study.
- (5) They had been enrolled in either CIP or ACCT prior to the onset of this study.

Decisions concerning sample size were based on the limited number of individuals available to participate in this study and the requirement for attainment of an adequate number of participants to perform proposed statistical analyses. At the outset of the study the recruitment of 50 participants (25 from each group) was proposed. Clients in the two programs were believed to be similar. Thus, this number was sufficient for detecting the existence of a large effect size between program treatment and productivity with power set at 80% and an alpha level of .05 (Keppel, 1991). In order to detect a medium effect 44 participants per group would have been required, and to detect a small effect 271 participants per group were needed, with power = 80% and an alpha of .05 (Keppel, 1991). Although the larger sample sizes mentioned would have greater power in

determining the existence of an effect, a total sample size of 50 was considered appropriate for this study due to time constraints and the small size of the population from which the sample was drawn.

The number of participants who actually took part in this study was 27 (12 were from the ACCT program and 15 from the CIP program). With power set at 70% and an alpha level of .05 this number permitted determination of a large effect size, and with power set at 30% and an alpha level of .05 it allowed determination of a medium effect size (Keppel, 1991). This number of participants may be considered large for studies that involve a sample of individuals with severe psychiatric disorders. Another time use study (Hayes & Halford, 1996) that compared daily time patterns for individuals with severe psychiatric disorders to other populations of individuals, used a similar number of participants per group ($n = 16$) to the number used in this study.

Consistent with Kalton's (1985) suggestion more than one measure of daily time use was taken to increase the reliability of data obtained from a small sample. In addition the investigator attempted to increase the power for detecting treatment effects by utilizing statistical tests to control for extraneous variables that may have affected outcomes (Stevens, 1996). Thus, it was anticipated that the probability of detecting a medium or small effect size was increased even though the number of participants remained unchanged.

Additionally, the results of this study will be useful to the clinical and research fields, and will hopefully stimulate further research, regardless of whether significant differences are present between the two groups. The findings of this study will reveal whether there is a need for ACT staff to assist clients in using their time in more meaningful ways. The

findings will also inform us if there is a need for ACT studies to address the impact on clients' productivity levels of modifications to the standard vocational component. For these reasons the sample size attained was considered appropriate for this study.

3.5 Procedure

A pilot study was conducted by collecting time use data on three individuals in the ACCT program through face to face interviews. Since research has shown that recall time diaries produce highly reliable results (Robinson, 1985), the aim of the pilot study was to ensure that the investigator was able to code the obtained data at a reliable level. Shepard (1993) reported that an interrater reliability of 80% between coders is important in coding data. For the pilot study, the degree of interrater reliability was determined by having four people, including the investigator of this study, code the activities that the participants reported. The reliability analysis, using the statistical package for social sciences (SPSS version 8.0, 1997), revealed that the level of agreement between raters was high at 99.83%. The results from the pilot study suggested that the investigator reliably assigned activities to the correct code and, therefore, that any variance was likely due to treatment differences as opposed to error.

At this point the investigator of this study contacted the project co-ordinator of the larger Assertive Community Treatment study to obtain information on demographic characteristics and other factors that were expected to possibly influence clients' time use outcomes based on past research findings. It was arranged for the investigator to visit the ACCT program site and obtain this information through scanning clients' charts after

signing a confidentiality form. The data were collected from CIP by a research assistant and then given to the investigator of this study, after the confidentiality form was signed.

The project co-ordinator of the larger ACT study arranged for staff in the CIP and ACCT programs to read a script to clients asking them to participate in a study (See Appendix D). Clients who were interested, participated in two interviews as part of the larger ACT study and were asked by the interviewers to participate in this study. If participants agreed then the project co-ordinator contacted the investigator of this study with the clients' names and phone numbers. The investigator then phoned clients and arranged a meeting time and place.

At the initial meeting with the clients the investigator explained the study in detail. Clients were asked to carefully read a copy of the consent form (see Appendix E), and it was fully explained that their signatures showed that they voluntarily consented to participate in the study but that they could withdraw at any time. The process of presenting a consent form addressed the relevance of the study, anonymity and confidentiality issues, potential risks and benefits, the types of questions that clients would be asked, and the kinds of responses that they could expect from the investigator.

Upon obtaining consent clients were shown a sample copy of a time diary form (See Appendix F). Clients were also asked to describe their prior work history for purposes of secondary analysis. Clients were asked to describe the jobs that they had held with the highest responsibility levels, to explain the duties required at these jobs, and whether they were full or part time. This permitted determination of whether past work history was related to time use outcomes. Finally, a meeting time was scheduled for data collection

on time use to begin. Participants were given a small card with the meeting time written on it to serve as a reminder. At the initial data collection meeting, a time was scheduled for the second and final meeting for data collection, and clients were again given a reminder card. When possible the investigator also made telephone calls prior to meeting times. Data were collected on Tuesdays through Fridays in order to determine how clients spent their time during weekdays. By collecting data over a period of four days the data were likely richer, as they provided a view of the activities that clients engaged in throughout a typical work week.

The recall time diary was the method used in this study to collect data during the meetings with clients. Data were collected from each participant using the face to face interviewing technique, and responses were written down verbatim, with the time unit being minutes. Face to face interviews were used to enhance the reliability of the results as the comfort level and memory of participants was likely increased, partially as a consequence of prompting procedures that were pursued by the interviewer.

The data were gathered for a total of two days per person. Kalton (1985) reported that data are more reliable if more than one measurement is taken from a smaller sample than if a single measurement is taken from a larger sample. It was reported that using two weekdays minimizes the burden that is placed on participants, and it allows the researcher to obtain an estimate of reliability between the days. Kalton (1985) reported that the reliability estimates established from other studies using two weekdays are appropriately high ($r = 0.4$) considering that people usually do not spend identical portions of time engaging in the same activities from day to day. Weekend time use patterns were not examined as individuals were less likely to be engaged in work related

activities during weekends, and the investigator was interested in examining the amount of time participants spend in productivity.

The investigator converted the raw data into codes based on four daily activity categories: personal care activities, sleep, leisure activities, and productive activities. The productive activities were further broken down into sub-categories including paid work, unpaid (household work), educational activities, volunteer activities, and day program activities. The leisure activities were divided into active leisure, passive leisure, and socialization, and the sleep activities were broken down into naps and essential sleep. All data pertaining to the amount of time participants spend engaging in various activities was stored into an SPSS program.

The codes used for this study were based on a coding scheme that was utilized in a Statistics Canada (1995) time use study of the general Canadian population. The coding scheme was used for this study because it was used in other time use studies (e.g.: Statistics Canada, 1992) and it permitted a comparison of time use patterns between the population of individuals in this study and those in the general Canadian population (Statistics Canada, 1995). Two minor revisions to the Statistics Canada (1995) codes were made to better suit the needs of this study (See Appendix G for the complete revised coding scheme used in this study). The revisions included:

(1) Sleep was considered a major daily time use activity in this study, as opposed to being a type of personal care activity as in the Statistics Canada (1995) study. The revision was necessary because the two activities are likely to impact community adjustment levels differently. Sleep time is when individuals are at rest from participating in daily life

activities and personal care time is when individuals are involved in specific daily life activities (e.g.: washing).

(2) Day program activities were included as a type of productivity in this study. This revision was essential as it was anticipated that the population under study would participate in day programs because they were developed specifically in response to the lack of daily structure exhibited by individuals with severe psychiatric disorders. Day programs provide individuals with the opportunity to engage in structured daily activities such as work and related activities, educational activities, and leisure activities (Anderson, Sherman, Sheldon & McAdam, 1997; Kramer, 1962).

3.6 Research Instrument

In order to determine the amount of time clients spent in daily activities, including productivity, this study utilized time budget diaries. Time budget diaries provide a method of systematically recording of a person's use of time over a given period, that is typically 24 hours, through the sequential recording of each activity, including start and end times (Harvey & Singleton, 1989). These diaries can be administered as one of two types. Leave behind time diaries require study participants to complete the diaries on their own at several times throughout the day and are then picked up on the following day by the interviewer. This method requires increased interviewer contact, personal and follow-up interviews, and as such is costly to administer. The type of diary utilized in this study, recall time diaries, requires participants to recall their activities for the previous day. A recall time diary can be described as a long open-ended question,

initiated by the interviewer asking "What were you doing at 12:01 A.M. (on the diary day)?" The response is written out on the diary form and is followed by questions such as "Where were you?", "Who were you with?", "Were you doing anything else at the same time?", and "How did you get from ---- to ----?". The rest of the diary is completed by "What did you do next?" questions and the follow-up questions previously mentioned, with the interviewer probing to ensure the consistency of beginning and ending times for activities reported (Juster, 1985a). It has been found that follow up questions, like the ones briefly mentioned above, serve to enhance memory for recall time diaries results (Harvey & Singleton, 1989; Lawton, Moss & Fulcomer, 1987; Pentland, Harvey, Walker & Smith, 1997).

Harvey & Singleton (1989) noted that time budget diaries offer, at the least, equally reliable information on time allocation when compared to other techniques, for the lowest possible cost. An alternative technique, direct observation, would be an inappropriate method of recording time use data because of the likelihood of altering the nature of activities, likelihood of a high refusal rate, and the fact that it would be extremely costly (Juster, 1985b). Frequency and duration surveys have also been considered unfitting because a complete list of appropriate activities would be extremely long, increasing the refusal rate. If this list was shortened then the reliability of the survey would be compromised (Juster, 1985b). Robinson (1985) reported on studies that show that time budget diaries, which have been described by Juster (1985b) as the most accurate method of obtaining data on time allocation, produce highly reliable results. Robinson (1985) noted a study that compared aggregate time budget diary entries for a sample in Michigan with entries for the national sample for the same period of time ($r = .95$). Robinson

(1985) also described studies that compared aggregate time diary entries for individuals who were asked to record entries for the day prior to the interview (yesterday method) and for the day following the interview (tomorrow method). This type of study was conducted on a single sample, as well as being compared with a national sample ($r = .85$ and $.88$ respectively).

In addition, concurrent validity has been well established for the use of recall time diaries in accurately recording people's daily use of time. Robinson (1985) conducted several validation studies by comparing recall time diaries with other methods of recording daily time use that have been presumed to have greater validity but higher implementation costs. Two of these studies focused on comparing data obtained through recall time diaries with data gathered in leave behind diaries, where participants were paged 40 to 50 times throughout the day to remind them to record activities at these time periods. The correlation between these methods was high ($r = .68-.81$). An additional study compared information reported in a yesterday (or leave behind) diary with that obtained through a telephone interview, asking persons to recall activities recorded in the yesterday diary for a particular hour ($r = .81$). Furthermore, Pentland et al. (1997) conducted a pilot study on adult males with long term-spinal cord injury and found that the quality of data obtained from the recall diaries completed through personal interviews was higher than the quality obtained from leave behind diaries.

While no research could be found that utilized recall time diaries to examine daily time use patterns of individuals with severe psychiatric disorders, the investigator was confident that this method provided a valid and reliable tool for the population being studied. This assumption was based on two findings. The first is that leave behind

diaries have been successfully used in recording daily time use patterns for individuals who have been diagnosed with severe psychiatric disorders (Hayes & Halford, 1996). The second finding is that the correlation between results that are obtained through leave behind and recall time diaries is high for the general population (Robinson, 1985).

3.7 Data Analysis

Guttman reliability coefficients were computed in order to determine whether it would be appropriate to combine and average the data from client interviews on day one and day two. The data were entered into the SPSS 8.0 statistical computer package. Statistical tests were conducted based on the study design and objectives of this study. The chosen tests were discussed with a statistician from Queen's University to ensure their appropriateness (Mr. T. Smith, Personal Communication, March 26, 1998).

Descriptive statistics, including means, standard deviations, and minimum and maximum ranges were presented for both groups regarding continuous variables that were believed to possibly impact time use outcomes. These variables were "age" and "Brief Psychiatric Rating Scale (BPRS) score". The BPRS refers to a 24 item scale that measures the severity of psychiatric symptoms over a period of one week (Overall & Gorham, 1962). Independent samples t-tests were then computed to determine if CIP and ACCT groups differed significantly on these variables. The reason that independent t-tests were chosen, as opposed to dependent t-tests, was because the two groups in this study were believed to be independent of one another even though randomization procedures were not employed.

Percentages were presented for each of the groups with respect to categorical variables that were expected to have a possible impact on time use outcomes. These variables included past work history, education level, gender, marital status, psychiatric diagnosis, and number of days in hospital between Jan 1st and June 30th, 1998. This time period was chosen for days in hospital because six months was believed to be an appropriate amount of time to gain a view of clients' productivity levels without the effects of hospitalization. Additionally, information was easily obtainable for this period of time. Fisher's exact tests were utilized in order to determine whether CIP and ACCT groups differed significantly on any of these variables.

The variables that were believed to impact time use were primarily chosen based on past research findings on individuals with severe psychiatric disorders. Anthony (1994) reported that "age", "gender", and "marital status" have been found to influence productivity time for this population. Mowbray, Bybee, Harris & McCrohan (1991) found that in addition, "days in hospital" and "psychiatric diagnosis" affect time in productivity. "Education" was found to influence time in productivity in a study based on the general population (Harvey & Singleton, 1989). "BPRS scores" were not mentioned in the literature but the investigator believed that this measure was likely to impact time use as it provided an indication of symptom severity, and "psychiatric diagnosis" was found to influence time use as individuals with more severe disorders spent less time in productivity (Mowbray et al., 1991).

For variables expected to influence time use outcomes in which the two groups differed, point biserial correlations were computed to determine the relationship between each of these variables and productive time use. This was important since a significant

relationship between the two would have indicated the need for covariance methods to be included in later analyses.

For outcome variables, descriptive statistics that were presented for the two groups included means and standard deviations. The outcome variables for this study included personal care; sleep, and its' subcategories essential sleep and naps; leisure, and its' subcategories active leisure, passive leisure and socialization; and productivity, and its' subcategories paid work, housework, education, day program activities, and volunteer work, and a combination of the last three activities mentioned. These three activities were combined because too few individuals were involved in either of them to obtain meaningful analysis for separately. Also, these activities were similar in that they were not gainful (in the sense of payment) but they occurred in the community usually in the presence of other community members. All variables were then analyzed for normality of the distributions using histograms with normality curves, Q-Q plots, boxplots, and skewness and kurtosis descriptive information. Square root transformations of the data were performed for personal care, paid work and housework in order to form more normal distributions. The other variables were near normal and did not require any transformations.

The first objective of this study was to make decisions concerning the hypotheses. In order to make decisions regarding the first of the two hypotheses a Hotelling's trace test was computed. It tested the hypothesis that "CIP clients will spend more time in productivity than ACCT clients". Three univariate independent samples two tailed t-tests were computed following a significant Hotelling's trace test effect. These univariate tests permitted comparison of the amounts of time CIP and ACCT groups spent in paid work

(and along with an examination of the means they permitted a decision to be made regarding the second hypothesis), housework, and a combination of education, day program, and volunteer work.

The second objective of this study was to examine and compare the amount of time spent in the various daily living activities during a 24 hour period for clients in this study. By meeting this objective a more complete picture of clients' community adjustment levels would be obtained. A Hotelling's trace test was conducted at this point in order to determine whether CIP and ACCT clients differed significantly in the manner in which they allocated their time during the day. Since the amount of time that was spent in leisure, productivity, personal care, and sleep adds up to 24 hours (and thus knowing the amount of time that is spent in any three categories permits determination of the amount of time spent in the fourth) these categories of activities were intercorrelated. Thus, sleep was excluded from the Hotelling's trace test analysis. The reason sleep was chosen as the appropriate variable for exclusion was because it relates to a time when individuals are at rest from the activities of daily life.

A significant Hotelling's trace test was followed by four individual univariate independent samples two-tailed t-tests. This permitted separate comparisons of the amount of time that CIP and ACCT clients spent in the various daily activity categories that comprise a 24 hour period, and includes productivity, leisure, sleep, and personal care activities. Two Hotelling's trace tests and any necessary univariate independent samples t-tests were then computed to determine whether there were any differences between CIP and ACCT groups in how they allocated their time in subcategories of sleep

and leisure. Again, this permitted a more complete view of how individuals spent their day and the extent of community adjustment achieved.

At this point the two groups were combined to form one large group with increased power of detecting differences. This allowed a more complete analysis of how clients spent their time when they were not involved in productivity. The amount of time spent in essential sleep versus naps was compared using a paired samples two tailed t-test. The amount of time in active leisure, passive leisure, and socialization was compared using a one way anova and a paired samples two tailed t-test.

The third objective of this study was to compare the daily time use patterns of individuals with severe psychiatric disorders living in the community who participated in this study with the daily time use patterns of populations of individuals from other studies. The statistical tests that were run to accomplish this were one sample two tailed t-tests. For these tests the two groups were again combined to form one group. The amount of time spent in major daily time use categories, including leisure, sleep, personal care, and productivity, was compared between this group and general Canadian population, based on a time use survey conducted by Statistics Canada in 1995. These activity categories were also compared for the group in this study and another group of individuals with severe psychiatric disorders who were outpatients enrolled in a day program, based on a study conducted by Weeder (1986). This day program provided vocational, recreational, social, and self maintenance services five days per week. These tests permitted a more comprehensive view of the extent of community adjustment experienced by clients in this study in relation to individuals with similar diagnosis who were not enrolled in ACT programs and in relation to the general "normal" population.

CHAPTER FOUR: RESULTS

4.1 Participants

Over a period of six months a convenience sample of 27 individuals participated in this study. Of these individuals 15 were from the CIP program and 12 were from the ACCT program (See Figure 4.1 for a summary of the sampling results). One additional individual from the CIP program dropped out of the study after signing the consent form. This individual said that she had changed her mind about participating. Since equal sample sizes were desirable for the two programs in this study attempts were made to recruit an additional three participants from the ACCT program. The investigator was given three additional names of ACCT clients who indicated interest in this study. However these individuals stated that they had changed their minds and refused to participate when contacted by the investigator of this study. Reasons for refusals were not given by individuals. However, the investigator felt that refusals may have been related to the fact that individuals lacked interest in this study because they had just finished taking part in the larger ACT study when they were approached regarding participation in this study.

The locations and dates for data collection interviews were based on participants' preferences and availability. Of the 27 participants in this study 14 (or 52%) were interviewed in their homes, 6 (or 23%) were interviewed at a public food site, 2 (or 7%) were interviewed at Queen's University, 3 (or 11%) were interviewed at the program site, and the remaining 2 (or 7%) chose different sites for the two meetings. One of these

participants chose to be interviewed at his house for the first meeting and in a quiet area of a nearby church for the second meeting. The other participant was interviewed at a coffee shop for the first meeting and at the CIP program site for the second meeting.

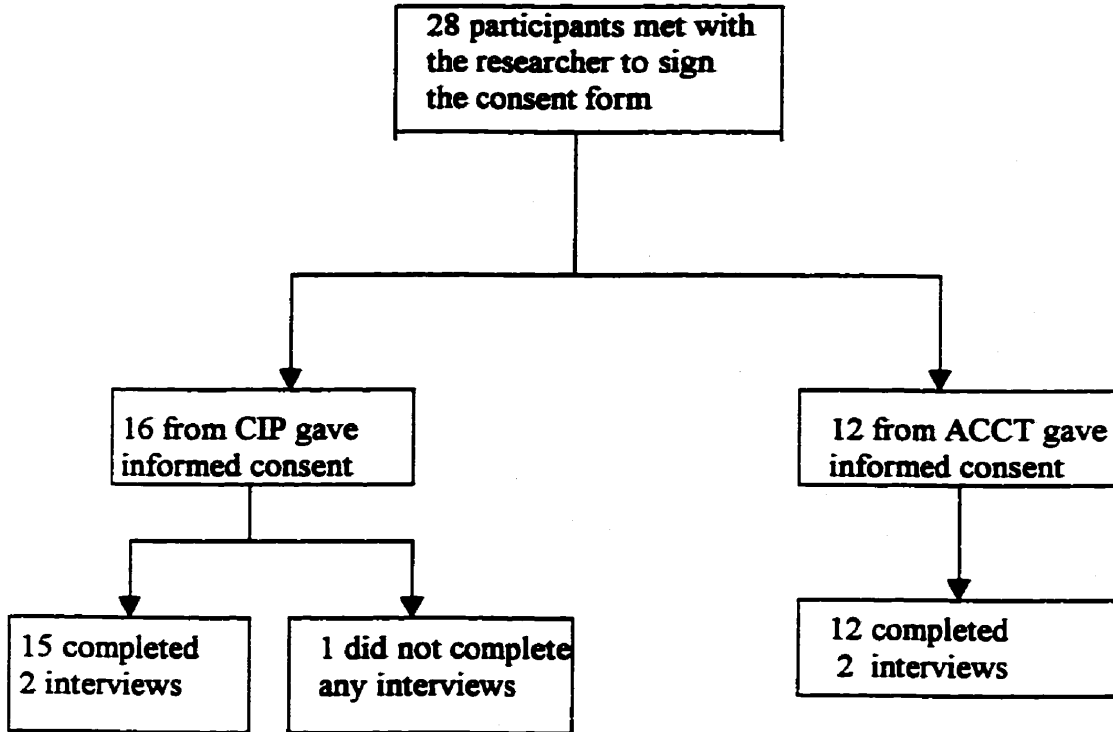


Figure 4.1.

Summary of the Sampling Results

At each meeting information that was collected pertained to activities that occurred on the day prior to the meeting. For the 54 interviews in this study, 14 of them (or 26%) were interviewed on Tuesdays, 16 (or 29%) were interviewed on Wednesdays, 9 (or 17%) were interviewed on Thursdays, and 15 (or 28%) were interviewed on Fridays (For a comparison of interview days for CIP and ACCT clients see Table 1).

Table 1:**Comparison of Interview Days for ACCT and CIP Clients**

Day	CIP		ACCT	
	#/30 interviews	%	#/24 interviews	%
Tuesday	8	27%	6	25%
Wednesday	7	23%	9	38%
Thursday	7	23%	2	08%
Friday	8	26%	7	29%

Table 2 presents sample characteristics that were believed to be plausible extraneous variables that could exert an influence on time use outcomes, including demographic variables, factors related to symptom severity, and prior work history. This table indicates there were no significant differences between CIP and ACCT clients on any of the variables expected to influence time use outcomes with the exception of the “days in hospital between January 1st and June 30th of 1998” variable.

Table 2:Comparison of Characteristics of ACCT and CIP Clients

Characteristic	ACCT		CIP		Significance
	n	%	n	%	
Total N	12	100%	15	100%	
Gender					0.130 (a)
Male	5	42%	11	73%	
Female	7	58%	4	27%	
Marital					0.569 (a)
Single/divorced/widowed	10	83%	14	93%	
Separated/never married					
Married/Living with sig. other	2	17%	1	7%	
Education					0.449 (a)
Less than high school grad	7	58%	6	40%	
High school graduate	5	42%	9	60%	
Age					0.834 (b)
Mean	40.60		41.60		
Standard deviation	14.52		9.16		
BPRS Score					0.203 (b)
Mean	52.20		45.07		
Standard deviation	14.78		9.27		
Days in Hospital					0.028* (a)
Less than 7 days	8	67%	15	100%	
More than 7 days	4	33%	0	0%	
Psychiatric Disorder					0.183 (a)
Schizophrenia	2	25%	9	64%	
Mood/Personality/Antisocial	6	75%	5	36%	
Prior Work History					1.0 (a)
Unskilled	8	67%	9	64%	
Skilled/Professional	4	33%	5	36%	

Note:

(a) = the comparison was tested at the 0.05 significance level (Fisher's exact test)

(b) = the comparison was tested at the 0.05 significance level (Independent T-Test)

4.1a Demographic Information

The demographic characteristics of CIP and ACCT clients are included in Table 2. In the ACCT program 42% of the clients were male and 58% were female. In the CIP program there were more males (73%) than females (27%). This difference in gender between the two groups was not statistically significant, fisher's test $p = .130$ ($p > .05$). However, from a qualitative perspective, it is important to recognize that the difference in gender between the two groups may have influenced their time use outcomes. It has been found that females are likely to spend significantly more time in housework activities than males (Statistics Canada, 1995).

The ages of ACCT clients ranged from 20 to 67 years with a mean age of 40.6 years. CIP clients' ages ranged from 26 to 59 with a mean age of 41.6 years. This difference in mean ages between the groups was very small and insignificant, $t(27) = -2.12$ ($p > .05$).

In the ACCT program the majority of clients (83%) were either single, divorced, widowed, separated, or never married. Only 17% of ACCT clients were married or living with a significant other. The majority of CIP clients (93%) were also single, divorced, widowed, separated, or never married, with only 7% married or cohabiting with a significant other. The difference in marital status between groups was small and insignificant, fisher's test $p = .569$ ($p > .05$).

With respect to education level of ACCT clients 58% had not completed high school while 42% were high school graduates. More of the CIP clients had completed high

school (60%) and 40% did not complete high school. This difference in education level between the two groups was not significant, fisher's test $p = .449$ ($p > .05$).

4.1b Client Characteristics Related to Symptom Severity

The majority of ACCT clients (75%) were diagnosed with either mood disorder, personality disorder, or antisocial adult behavior. The other 25% were diagnosed with schizophrenia. In the CIP program the majority of clients were diagnosed with schizophrenia (64%) with 34% having been diagnosed with either mood disorder, personality disorder, or antisocial adult behavior. Although this difference between the two groups was not statistically significant, fisher's test $p = .183$ ($p > .05$), this difference may have qualitative relevance. The two ACT programs may have been serving groups that differed enough within the definition of severe mental illness to impact their time use patterns. It is important here to note that some participants were excluded from this comparison; specifically four participants from ACCT and one from CIP were excluded because their diagnoses were reported as unknown. A third category of disorders called "unknown" was not included in the analyses because the results would not have been meaningful. Initially, three categories were included and a chi square test was computed (as opposed to the fisher's exact test) to determine if differences existed between the two groups. The results indicated that 80% of the cells had expected frequencies of less than five. The recommended solution according to Pett (1997) is to collapse the categories into two meaningful ones and run a fisher's exact test to determine if the groups differed.

The BPRS scores provided an overall score for the severity of a client's symptoms during the week period immediately prior to the BPRS interview. The BPRS scores for ACCT clients ranged from 33 to 72 with a mean score of 52.2. For CIP clients the range of scores was smaller as they varied between 31 and 60 with a mean score of 45.08. The difference in BPRS scores between the groups was not significant, $t(27) = .854$ ($p > .05$).

In the CIP group all clients (100%) spent less than 7 days in the psychiatric hospital between January 1st and June 30th, 1998. The majority of ACCT clients (67%) also spent less than 7 days there, with 33% spending more than 7 days there. Upon further analyses it was found that of the 33% three of them were in the hospital for less than one month and one person was in the hospital for more than one month. This information could not be reflected in the group comparison, however, because the chi square test results indicated the need to collapse information into two meaningful categories as opposed to three. This collapsing permitted a fisher's exact test to be run in place of the chi square test. The comparison between groups showed that, although the majority of clients in both groups spent less than 7 days in the hospital, ACCT clients spent significantly more days in a psychiatric hospital during the specified period than CIP clients, fisher's test = .028 ($p < .05$).

4.1c Prior Work History

The majority of ACCT clients (67%) indicated that the prior job with the highest attainment level was unskilled. The remaining 33% of clients indicated having held a skilled or professional level job in the past. For CIP clients the results were very similar

as 64% indicated that the job with the highest responsibility level was unskilled. The other 36% reported having a skilled or professional job at some point in the past. This difference between groups was not significant, fisher's test $p = 1.0$ ($p > .05$).

4.2 Meaningfulness of Recall Time Diary Data

This section presents the results of reliability tests used to examine the relationship between time use data collected on day one and day two. This analysis permits a decision to be made concerning the appropriateness for combining and averaging the data when addressing the study's objectives. Additional sections in this chapter include discussions of how the time use data were analyzed to address the objectives of this study.

4.2a Recall Time Diary Data

Guttman split-half reliability coefficients were computed in order to determine how reliable the data for the two interview periods per client would be if combined and averaged for further analyses. Appendix H presents pie charts of clients' time use patterns during interview one and interview two. The Guttman split-half coefficient for productivity was 0.41, for leisure it was 0.56, for personal care it was 0.64 and for sleep it was 0.38. These coefficients were considered large enough to provide support for combining and averaging the data from the two days based on Kalton's (1985) report that a reliability level of 0.40 is appropriately high for time use data.

4.3 Objective 1: Decisions regarding Hypotheses

The first objective was to compare the amount of time CIP and ACCT clients spent in productivity, and the sub-categories comprising productivity to make decisions regarding hypotheses acceptance. However, prior to determining the most appropriate statistical method to accomplish this goal it was necessary to compute a point biserial correlation to examine the strength of the relationship between productivity and the “number of days in hospital” variable. This was essential as “hospital days” was found to be the only extraneous factor that could influence productive time use outcomes on which the two groups differed significantly. The strength of this relationship was insignificant, ($r(27) = 0.586, p > .05$), suggesting that productivity outcomes were not affected by the number of days spent in the hospital. Therefore, it was decided that a Hotelling’s trace test would be most appropriate since there was no need to control for “days in hospital” as an extraneous factor in this study.

Table 3 presents descriptive statistics, including means and standard deviations, for time CIP and ACCT clients spent in productivity and its’ subcategories - including paid work, housework, volunteer work, education, day program activities, and a combination of the last three sub-categories. It also presents the results of tests used to compare productivity time allocation for the two groups. A Hotelling’s trace test was run to determine whether there was a significant difference in the amount of time CIP and ACCT clients spent in productivity. As Table 3 shows there was a significant difference, $t(27) = 3.76 (p < .05)$. The ACCT group spent more time ($M = 4.32$ hrs) in productivity

than the CIP group ($M = 2.71$ hrs). This difference between groups was in the direction opposite to that expected.

Three univariate independent samples t-tests were conducted to determine what sub-type(s) of productivity activity(ies) accounted for the significant Hotelling's trace difference between groups in productivity time, and to permit a decision to be made regarding the second hypothesis. This hypothesis stated that CIP clients will spend significantly more time in paid work activities. As Table 3 shows there was no significant difference between groups in time spent in paid work activities, $t(27) = 0.073$ ($p > .05$). On average, the CIP group spent 0.72 hours in paid work and the ACCT group spent 0.56 hours in paid work.

Table 3

Comparison of Mean Productivity Time (Hrs) for CIP and ACCT clients

Activity	Mean	CIP Range	Mean	ACCT Range	Significance
Productivity	2.71	7.72	4.32	5.58	.025*
Paid work	0.72	5.83	0.56	6.21	.790
Housework	1.93	4.28	3.06	6.45	.066
Day Program (DP)	0.00	0.00	0.27	2.25	N/A
Education (ED)	0.00	0.00	0.43	2.83	N/A
Volunteer (VW)	0.06	0.50	.007	0.08	N/A
DP, ED & VW	0.06	0.50	0.70	2.83	.037*

Notes:

1. * = the comparison is significant at the 0.05 level
2. Data for paid work and housework were transformed

Table 3 also reveals that there was no significant difference in the amount of time spent in housework by the two groups, $t(27) = 3.69$ ($p > .05$). On average, ACCT clients spent 3.06 hours in housework and CIP clients spent 1.93 hours in these activities. The amount of time spent in the combined category of education, day program, and volunteer work activities was significantly higher $t(27) = 4.87$ ($p < .05$) for ACCT clients ($M = 0.70$ hrs) than for CIP clients ($M = .064$ hrs). It was this difference between groups that accounted for the difference found in the Hotelling's trace test for productivity.

Due to the number of comparisons made in this study and the difference in the sample size of groups there is an increased chance of type I errors occurring (Pett, 1997). This means that there is an increased likelihood that a significant difference between groups will be found by chance with each additional comparison that is made. The alpha level, however, remained unchanged at .05 for all comparisons in this study since the sample size is so small that the likelihood of any possible real differences being found is decreased by this fact alone. Additionally, the reason for unequal sample sizes was unrelated to the study's design and did not pertain to attrition. Since the problems raised by unequal sample size are not disastrous when using t-tests (Pett, 1997), and the groups in this study were found to be similar on variables that could possibly influence time use outcomes it was decided that there was no need to employ a statistical technique (i.e.: unweighted means) to account for the unequal sample size.

4.4 Objective 2: Determination of how Clients spend their Daily Time

Objective 2 was to gain a more complete view of the extent of clients' community adjustment by examining how they spend their time.

4.4a Comparison of Daily Time Use Patterns between Groups

A Hotelling's trace test was conducted to see if the CIP and ACCT clients differed significantly in the manner in which they allocated their time during the day. This test compared time spent in productivity, leisure, and personal care activities. As was already noted in the methods section of this study, sleep was excluded from the Hotelling's trace test analysis because of the dependency of time use categories (interrelationship). See Table 4 for the results of this test. The t-test showed that the two groups allocated their time in a significantly different manner, $t(27) = 2.98$ ($p \leq .05$).

Table 4

Comparison of Mean Times (Hrs) in Activities for CIP and ACCT

Activity	CIP		ACCT		Significance
	Mean	Range	Mean	Range	
Hotelling's trace test					.050*
Sleep	10.26	6.69	8.46	7.50	.041*
Personal Care	02.33	6.48	2.56	3.89	.480
Leisure	08.70	7.85	8.65	8.95	.958
Productivity	02.71	7.72	4.32	5.58	.044*

Notes:

1. *=significant at the .05 level
2. Personal care data were transformed using the square root transformation

Four separate univariate independent samples t-tests were run (See Table 4) in order to determine the activities in which the two groups spent differing amounts of time and, thus, to permit identification of the activities that accounted for the significant Hotelling's trace test effect. Table 4 presents the results of these tests. CIP clients spent more time in sleep ($\underline{M} = 10.26$ hrs) than ACCT clients ($\underline{M} = 8.46$ hrs). This difference between groups was significant, $t(27) = -2.16$ ($p < .05$). The amount of time spent in productivity was also significantly different for CIP and ACCT clients, $t(27) = 4.508$ ($p < .05$). ACCT clients spent more time ($\underline{M} = 4.32$ hrs) in productivity than CIP clients ($\underline{M} = 2.71$ hrs). These results are similar to those found when a Hotelling's trace test was run on productivity (See Table 3).

ACCT clients spent similar amounts of time in personal care activities ($\underline{M} = 2.56$ hrs) to CIP clients ($\underline{M} = 2.33$ hrs). The difference was not significant, $t(27) = .514$ ($p > .05$). For leisure both groups allocated similar amounts of time, with CIP clients spending an average of 8.70 hours in these activities and ACCT clients spending an average of 8.65 hours in them. This difference between groups was not significant, $t(27) = .003$ ($p > .05$).

The results from the univariate t-tests showed that significant differences existed between CIP and ACCT clients only in productivity and sleep time. These differences accounted for the significant Hotelling's trace test difference in time use patterns.

Since the groups were found to spend significantly different amounts of time in sleep (See Table 5) the amount of time spent in sub-categories comprising sleep were compared between the groups. Table 5 presents the results of these comparisons.

Table 5**Comparison of Mean Time (Hrs) in Sub-Categories of Sleep by Group**

Activity	CIP mean	ACCT mean	Significance
Hotelling's trace test	10.26	8.46	.043*
Essential sleep	09.12	7.00	.016*
Naps	01.46	1.14	.588

Note: * = significant at the .05 level

The results from a Hotelling's trace test showed the groups spent their sleep time in a significantly different manner, $t(27) = 4.52$ ($p < .05$) (See Table 5 for the results of this test). Two univariate independent samples t-tests were then run to determine which sub-category(ies) of sleep accounted for the Hotelling's trace test significant effect. The difference between groups in nap time was not significant, $t(27) = .549$ ($p > .05$). On average, CIP clients spent 1.46 hours napping and ACCT clients spent 1.44 hours in naps. However, the difference between groups in essential sleep time was significant, $t(27) = -2.56$ ($p < .05$). CIP clients spent more time in essential sleep ($M = 9.12$ hrs) than ACCT clients ($M = 7$ hrs). This difference in essential sleep time accounted for the significant Hotelling's trace test difference.

Given the fact that ACCT and CIP clients spent a large portion of the day in leisure (See Table 4) it seemed important to examine whether the two groups differed in the amount of time allocated to the various leisure activities (See Table 6).

Table 6**Comparison of Mean Time (Hrs) in Sub-Categories of Leisure by Group**

Activity	CIP mean	ACCT mean	Significance
Hotelling's trace test	8.70	8.65	.986
Active leisure	0.85	0.74	N/A
Socialization	2.85	2.82	N/A
Passive leisure	5	5.1	N/A

A Hotelling's trace test was run to see if the two groups were significantly different in the manner in which they allocated their leisure time - in active leisure, socialization, and passive leisure. There was no significant difference in how the groups allocated their leisure time, $t(27) = .014$ ($p > .05$). As Table 6 shows, on average, CIP clients spent 0.85 hours in active leisure, 2.85 hours in socialization, and 5 hours in passive leisure. ACCT clients, on average, spent 0.74 hrs in active leisure, 2.82 hours in socialization, and 5.1 hours in passive leisure. No univariate t-tests were run to compare the amounts of time the groups spent in sub-categories of leisure because the Hotelling's trace test was not significant.

4.4b Comparisons of Participation in Activities with Groups Collapsed

The two groups in this study were collapsed in order to increase sample size and, thus, the power for detecting differences when comparing the amount of time spent in different activities. Comparisons were made for amount of time spent in the

subcategories of leisure; for subcategories of sleep; and for subcategories of productivity. Table 7 displays the results of these comparisons.

Table 7

Comparison of Time in Activity Subcategories with Groups Collapsed

<u>Activity</u>	<u>Mean (hrs)</u>	<u>Comparison</u>	<u>Significance</u>
1. Active leisure	0.80	1 & 2 & 3	.000*
2. Socialization	2.83	1 & 2	.000*
3. Passive leisure	5.04	2 & 3	.008*
4. Essential sleep	8.18	4 & 5	.000*
5. Naps	1.28		
6. Paid work	1.27	N/A	N/A
7. Housework	1.58	N/A	N/A
8. Volunteer, educ, day prog	0.35	N/A	N/A

Note: * = significant at the $\leq .05$ level

A repeated measures test for leisure revealed that individuals spent significantly different amounts of time in the different types of leisure activities, $F(2, 52) = 22.60$ ($p < .05$). Since the greatest discrepancy between leisure subcategory mean times was between active and passive leisure it was concluded that individuals spent significantly less time in active leisure ($M = 0.80$ hrs) than in passive leisure ($M = 5.04$ hrs). Two paired samples two tailed t-tests were then computed to examine further differences in leisure time use. These tests showed that individuals spent significantly less time, $t(27) = -4.82$ ($p < .05$) in active leisure ($M = 0.80$ hrs) than in socialization ($M = 2.83$ hrs), and significantly less in socialization than in passive leisure ($M = 5.04$ hrs).

A paired samples t-test was then run in order to determine if there was a significant difference in the amounts of time spent in essential sleep and naps. This test showed that individuals spent significantly more time, $t(27) = 11.42$ ($p < .05$) in essential sleep ($M = 8.18$ hrs) than in naps ($M = 1.28$ hrs).

A one way anova was computed to determine if individuals differed in how they allocated their productive time, with the three subcategories including paid work, housework, and a combination of education, volunteer work, and day program activities. The results showed that individuals did not differ significantly in the amount of time spent in different types of productivity, $F(2, 52) = 2.84$ (See Table 7). On average, participants spent 1.58 hrs in housework, 1.27 hrs in paid work, and 0.35 hours in day program activities, volunteer work, and education. Univariate t-tests were not computed to compare amounts of time spent in various leisure subcategories since the Hotelling's trace test was not significant.

4.5 Objective 3: Comparison of Findings from This Study with other Populations

Objective 3 was to compare the findings pertaining to time use patterns of individuals in this study with the results from time use studies on the general Canadian population (Statistics Canada, 1995) as well as with those from another population of individuals with severe psychiatric disorders (Weeder, 1986). These comparisons permitted further determination as to the extent of community adjustment of individuals with severe psychiatric disorders with particular reference to those served by ACT.

4.5a Comparison with the General Canadian Adult Population

Four separate one-sample t-tests were used to compare the amount of time individuals in this study spent in the various daily living activities as opposed to those in the general Canadian population (Statistics Canada, 1995). A Hotelling's trace test was desirable but could not be run prior to the univariate tests in this instance because the raw data from the Statistics Canada (1995) study would be needed but this information was not available to the investigator of this study. The means for the various daily activities were available, however, permitting the investigator to carry out univariate t-tests. Table 8 presents the results of these tests. There was a significant difference in the amount of time spent in productivity, $t(27) = -11.81$ ($p < .05$). Individuals in the general Canadian population spent more time in productivity ($M = 9.3$ hrs) than individuals in this study ($M = 3.43$). Individuals in the general Canadian population spent less time in leisure activities ($M = 4.55$ hrs) than those in this study ($M = 8.68$ hrs). This difference between groups was significant, $t(27) = 6.76$ ($p < .05$). They also spent significantly, $t(27) = 3.65$ ($p < .05$) less time ($M = 7.83$ hrs) sleeping than individuals in this study ($M = 9.46$ hrs). However, the amount of time spent in personal care activities was not significantly different between groups, $t(27) = -.066$ ($p > .05$). On average, the individuals in this study spent 2.43 hours in personal care activities and the general Canadian population spent 2.2 hours in these activities.

It seems appropriate to compare findings from this study with those from the Statistics Canada (1995) study because both are based on adult populations. Furthermore, the coding scheme used in this study was based on the codes developed by Statistics

Canada (1995) with only minor modifications. These modifications include the addition of day program activities as a type of productivity, and the coding of sleep as it's own major daily time use activity rather than as a type of personal care activity.

Table 8

Comparison of Findings with the Statistics Canada Time Use Survey

<u>Activity</u>	<u>Thesis Means</u>	<u>Statistics Can Means</u>	<u>Significance</u>
Productivity	3.43	9.3	.000*
Sleep	9.46	7.83	.001*
Leisure	8.68	4.55	.000*
Personal Care	2.43	2.2	.948

Notes:

1. * = significant at the .05 level

4.5b Comparison with Adults with Severe Psychiatric Disorders

Four separate one-sample t-tests were computed to compare the amount of time individuals in this study and those in a study by Weeder (1986) devoted to the major daily time use activities. Weeder's participants consisted of 20 individuals with severe psychiatric disorders who attended a day program for five days per week. The day program provided individuals with vocational, recreational, social, and self-maintenance services. The results of these comparisons are presented in Table 9.

Table 9**Comparison of Findings with Weeder's Time Use Study**

Activity	Thesis Mean	Weeder's Mean	Significance
Productivity	3.43	2.4	.016*
Sleep	9.46	9.1	.422
Leisure	8.68	8.3	.426
Personal care	2.43	4.4	.000*

Notes:

1. * = significant at the .05 level

Individuals in this study spent more time in productivity ($M = 3.43$ hrs) than those in Weeder's study ($M = 2.4$ hrs). This difference was significant between groups $t(27) = 2.57$ ($p < .05$). The amount of time spent in personal care activities also differed significantly, $t(27) = -7.29$ ($p < .05$). Individuals in this study spent less time in personal care activities ($M = 2.43$ hrs) than those in the Weeder study ($M = 4.4$ hrs).

The difference in sleep time was not significant $t(27) = 8.16$ ($p > .05$) since, on average, individuals in this study spent 9.46 hours sleeping and in the Weeder study they spent 9.1 hours sleeping. Similarly, the difference in leisure time allocation was not significant, $t(27) = .809$ ($p > .05$). Individuals in this study spent an average of 8.68 hours in leisure and those in Weeder's study spent 8.3 hrs in leisure.

It was deemed appropriate to compare the findings from this study with those of the Weeder (1986) study due to the similar coding systems that were used in the studies. The

only difference noted between the two coding schemes was that in this study
“housework” was considered a “productive activity” whereas in Weeder’s study it was
considered a “personal care activity”.

CHAPTER FIVE: DISCUSSION

This chapter presents the limitations of this study. Following this the main findings are discussed in relation to specific client characteristics, the objectives of the study, and the appropriateness of the recall time diary for the population under study. The conclusions and implications of the study are presented at the end of the chapter.

5.1 Limitations Associated with the Research Study

There are several limitations that are associated with the posttest only control group design. The first limitation, that has been described as making the design inherently weak, is that only tentative conclusions about causal relationships can be drawn because there is no evidence that the study groups were similar prior to program enrollment (Cornwall & Murrell, 1993; Portney & Watkins, 1993). In this study the limitation results from the investigators' inability to apply random assignment and pre-testing procedures. This limitation means that in this study a "cause and effect" relationship cannot be drawn with certainty to show that extent of fidelity to the standard vocational component in ACT programs is responsible for productivity outcomes. Although causality statements cannot be made in this study, statements concerning the relationship between fidelity to the standard vocational component in ACT programs and productivity outcomes can be made with increased strength. This is possible because the investigator of this study had attempted to ensure that the two groups were as similar as possible on

variables that were expected to influence outcome measures through conducting statistical tests.

Other limitations, pertaining to the study design, which threaten internal validity include attrition and selection biases (Portney & Watkins, 1993). Attrition was reduced in this study by allowing participants to choose the time and location for interviews. This ensured that clients were confident and comfortable during data collection. Additionally, participants were paid for their time. Selection biases were decreased by ensuring that financial expenses pertaining to participation in the study were provided. Also, as mentioned earlier, statistical procedures were used to ensure the two groups were similar on characteristics anticipated to affect outcomes.

An additional limitation, related to the type of sample utilized, is the extent of generalizability of the findings. A convenience sample was used for this study because random selection methods had been applied initially but failed to achieve a sufficient number of people for participation in this study. Therefore, basically all of the clients who were enrolled in ACCT and CIP were asked to participate. However, the extent of the selection biases associated with this sampling procedure were reduced through ensuring the groups were similar on factors. Also, the investigator of this study had no reason to believe that participants were not representative of the populations from which they were drawn. It has been reported that even with randomly selected populations there is a non-response rate that can affect generalizability (Bryman & Cramer, 1994).

Another limitation, that is specific to this study, involves the dedicated vocational specialists at CIP. In examining the relationship between fidelity to the standard vocational component in ACT programs and productivity it is assumed that the vocational

specialists, who were available on the CIP site, perform all the duties outlined in the job description. The reality is that the vocational specialists may not have been performing all required duties and this would likely have affected the findings of this study.

The final limitation pertains to time use studies in general. Time use patterns can be affected by many events that differ for each individual and, thus, they cannot be controlled by utilizing statistical techniques. During data collection the investigator of this study noted that several participants stated that their daily activities were different than usual. Two of the participants mentioned that they had the flu and that this resulted in visits to the doctor, more time in sleep, and less time in productivity. One of these participants said that she normally worked in the evenings but that the flu had been preventing her from working during the time period in which she was interviewed. Two other participants mentioned that they were going through a stressful period and that stress affected how they spent their time. One participant said that a family member was visiting him and this stressed him so he spent more time in sleep than usual.

5.2 Discussion of Results

5.2a Specific Client Characteristics

When examining prior work history it was found that CIP and ACCT clients were similar. The findings indicate that in both groups about 35% of the clients had held a skilled or professional job at some time in the past. Authors of research that reviewed literature on vocational rehabilitation outcomes have consistently reported that

employment history is the demographic variable most predictive of future vocational success (Anthony et al., 1995; Lehman, 1995). One study found that persons with psychiatric disabilities and more extensive work histories were more likely to be employed (Mowbray et al., 1991). However, as the data that were collected for this study show, few clients from either program were involved in competitive employment and the amount of time spent in productivity was low. The findings also suggest that a fairly large percentage of clients had valuable work experience. Lack of work skills has been identified as a barrier for many individuals with severe psychiatric disorders since normal vocational development is often interrupted (Russert & Frey, 1991; Scheid & Anderson, 1995). For 35% of the clients in CIP and ACCT programs, however, this barrier was removed. Yet, their involvement in work activities remained minimal.

Although there was no statistically significant difference between CIP and ACCT clients with respect to their psychiatric diagnoses more of the CIP clients (64%) were diagnosed with schizophrenia than ACCT clients (25%). This could have qualitative importance as it suggests that the two ACT programs in this study may have been serving different populations of clients within the definition of severe mental illness.

Schizophrenia is considered the most severe of the major mental disorders. According to recent research there is a moderate negative relationship between psychiatric symptoms and work outcomes (Anthony, Rogers, Cohen & Davies, 1995; Lehman, 1995). The findings of one study that examined this relationship revealed that individuals with schizophrenia were more likely to leave psychiatric rehabilitation programs unemployed than those with other types of psychiatric disorders (Anthony et al., 1995). The authors of an additional study that reviewed the literature on vocational rehabilitation concluded

with limited confidence that schizophrenia is a negative predictor of response to vocational rehabilitation in comparison to other psychiatric diagnoses (Lehman, 1995). These findings imply that the low productivity levels of CIP clients may be partially attributed to the severity of the symptoms that they experience.

An alternative plausible reason for the lack of participation in productivity is that the ACT programs in this study did not include dedicated vocational specialists as essential members of their teams. However, since the nature of the study prevents cause and effect conclusions to be drawn it is suggested that future ACT research be conducted in order to determine the impact of modifying the standard vocational component.

For this study, the ACCT program clients had access to occupational therapists on site who were generalists that performed vocational services when requested. The CIP clients, in comparison, appeared to have more vocational opportunities available to them as they had access to dedicated vocational specialists on site through referrals from the parenting agency. However the number of referrals that CIP clients were given to meet with vocational specialists was not measured as part of this study. If few referrals were made this also may have accounted for the low amount of time they spent participating in work activities. The findings of one study showed that mental health and psychosocial rehabilitation programs generally refer only a minimal portion of their clients to vocational specialists (Noble, 1998). Research has reported that by having a vocational specialist present as an essential member of the ACT team clients' productivity levels are enhanced (Russert & Frey, 1991). A study that examined the impact of adding vocational specialists to the staff of a community mental health centre found improvements in productivity outcomes (Blankertz & Robinson, 1996). The results showed that

productivity time was significantly enhanced for clients as more of them were involved in competitive employment, volunteer work, vocational rehabilitation programs, and school.

Vocational specialists enhance productivity outcomes for clients through changing the environment so that they find work opportunities for clients that reflect their individual skills and desires (Akabas, 1994). During data collection the investigator noted that five of the participants in the study stated that they were not working because the job opportunities that they were provided with, through the ACT program that they were enrolled in, did not meet their skills and desires and, thus, lacked meaning to them. One participant mentioned that she had been working at the CIP site but that the job was too stressful for her so she quit. Three other participants spoke of the consumer run car wash at the CIP site. There was a great deal of consensus between these clients regarding why they had quit working there or why they disliked working there. Reasons given included the low pay and the fact that it did not keep them busy continuously. One participant stated that during times when the car wash was not busy he would become depressed. The reasons for the low pay and lack of business was partially related to the winter season. Pay was based on the amount of business and business slowed down during winter months. All of the individuals who said that they did not feel the car wash was an appropriate job for them felt that the contract factory work, that was located at the same site as the car wash, would be enjoyable. The main reason given for this was that it paid well.

5.2b Differences in Productivity Outcomes Between Groups

ACCT clients were found to spend significantly more time in productivity than CIP clients. This difference was in the opposite direction to that hypothesized. Since CIP clients had access to vocational specialists on site it was expected that they would spend more time in productivity than ACCT clients. The amount of time spent in the sub-categories composing productivity was compared between the CIP and ACCT groups to determine why ACCT clients spent significantly more time in productivity. It was found that ACCT clients spent significantly more time than CIP clients in the combined categories of educational activities, day program activities, and volunteer work. Although this difference was significant, only two ACCT clients were involved in educational activities and two involved in day program activities. In the CIP program none were involved in either educational or day program activities. If volunteer work was examined as a separate category (rather than being combined with education and day program) then CIP clients would have been found to spend more time in this type of work than ACCT clients. These results suggest that the difference in productivity levels between groups may have been due to outliers; that is only a few individuals participated in education and day program activities in the ACCT program.

Additionally, although the difference was not quantitatively significant, ACCT clients were found to spend more time in unpaid housework and related activities than CIP clients. This difference in housework is important qualitatively, and it may be attributed to the fact that more females were enrolled in the ACCT program (58%)

compared to the CIP program (27%). The results of a time use study by Statistics Canada (1995) on the general Canadian population showed that females spent significantly more time in housework and related activities than males. When the group aged 25-44 was examined it was found that females contributed twice as many hours to housework and related activities, and for the group aged 45-64 females did more than 60% of these activities. Also only one participant, who was in the ACCT program, spent a large portion of the day involved in activities related to caring for her children, which is considered a housework activity.

Overall the results regarding productivity levels from this study indicated that CIP and ACCT clients spent little time in productivity. This finding is disturbing and needs to be addressed by clinicians and researchers of ACT programs since productivity is directly related to well-being (Juster et al., 1985).

5.2c How Clients Spend Time in the Community

Daily time use patterns were compared for ACCT and CIP clients by examining time spent in sleep and its' subcategories; productivity and its' subcategories; leisure and its' subcategories, and personal care. When the daily time use patterns were compared it was found that CIP clients spent significantly more time in essential sleep. This difference may be attributed to the fact that more CIP clients than ACCT clients had been diagnosed with disorders believed to be more severe (schizophrenia). In interviewing clients the investigator found that many of them said that they spent large percentage of time sleeping because they did not feel well. This finding makes sense as those with more

severe disorders are likely to take more medication and medication has been found to increase drowsiness in clients (Kirsh, 1996; Schied & Anderson, 1995).

Section 5.2b addressed the result that productivity time was significantly greater for ACCT clients than for CIP clients. The finding that when the two groups were combined differences were not significant, with respect to how much time clients allocated to the subcategories of productivity, may be attributed to the low degree of participation in all of the subcategories.

The amount of time spent in leisure activities was similar for both groups. In examining leisure subcategories the results indicated that both groups allocated their leisure time in a similar manner. Both spent the greatest portion of their leisure time in passive activities (approximately 5 hrs) which have been found to provide individuals with little satisfaction (Juster, 1985c). Furthermore, interviews with clients regarding their daily activities suggested that most of their passive leisure time was spent watching television. Research has revealed that television viewing is one of the least satisfying types of passive leisure that individuals participate in (Juster, 1985c). The findings also showed that CIP and ACCT clients spent approximately 2.8 hrs in socialization and .80 hours in active leisure. These areas of leisure have been reported to be more satisfying to individuals than passive leisure because they usually involve interaction with other individuals (Juster, 1985c). When the two groups were combined it was found that individuals spent significantly more time in passive leisure than socialization and significantly more in socialization than in active leisure.

The findings pertaining to leisure suggest that clients in the CIP and ACCT programs need to be given assistance in the constructive use of their leisure time since participation

in passive leisure has been found to provide clients with little satisfaction (Juster, 1985c) and satisfaction is directly related to changes in well-being (Juster et al., 1985).

5.2d Comparison of Daily Use Patterns with Other Populations

The daily time use patterns of individuals with severe psychiatric disorders who participated in this study were compared with the patterns for the general Canadian population (Statistics Canada, 1995). The amount of time that was spent in personal care activities was the only area in which the two groups were similar with respect to time allocation. Yet, during data collection the investigator noticed that the manner in which participants spent most of personal care time was likely different than the general population. Many participants seemed to allocate much of their personal care time to relaxing, just sitting and smoking, and to praying. When asked about participation in personal care activities such as washing, brushing teeth, changing clothes for bed, and eating meals, many of them seemed to have spent minimal time in these areas.

The findings pertaining to productivity indicated that ACT program clients spent significantly less time in these activities than the general Canadian population. This finding is extremely important since participation in productivity has been found to increase well-being for individuals with and without psychiatric disorders (Juster, 1985c) as both groups have similarly high satisfaction ratings for productive activities (Weeder, 1986). Past ACT studies have shown that ACT programs that included a dedicated vocational specialist as a team member increased clients' productivity levels beyond those of the national average (Russert & Frey, 1991). However, since the productivity

levels of clients in this study were low there seems to be a need for future ACT research to examine the impact of modifying the standard vocational component. It is important for ACT researchers and clinicians to aim to improve productivity outcomes for clients, in addition to continuing to improve clinical outcomes such as symptoms and hospitalizations.

Findings also revealed that the clients from ACT programs in this study spent significantly more time in sleep and leisure activities than those in the general Canadian population (Statistics Canada, 1995). This is due to the differences in productivity levels of the two populations being compared. If ACT clients from this study spent more time in productivity then the amount of time spent in leisure and sleep would be reduced. Thus, daily time use patterns of ACT clients would be more similar to those of the general Canadian population.

The daily time use patterns of individuals with severe psychiatric disorders who were enrolled in ACT programs and who participated in this study were compared with those of individuals with severe psychiatric disorders who were enrolled in a day program (Weeder, 1986). The findings of these comparisons indicated that both groups spent a similar portion of their time in sleep, and leisure. Participants in this study, however, spent significantly more time in productivity and significantly less time in personal care activities. These differences may be due to the fact that Weeder incorporated housework into personal care activities, whereas in this study housework was considered a productive activity. Thus, ACT programs in this study may not have been any more effective than the day program in enhancing clients' community adjustment levels through time use.

The descriptions of findings provided in this chapter have indicated that the vocational components of ACT programs need more direct attention in the research literature. One modification that may be effective is the addition of dedicated vocational specialists as critical members of the ACT teams. This may effectively enhance productivity outcomes since it is difficult to meet the vocational needs of this population due to the many barriers to employment that people with severe psychiatric disorders must overcome. Dedicated vocational specialists have been found to overcome these barriers for clients must as they are obligated to increase work outcomes (McCory, 1988; Anthony et al., 1988). It has been reported that vocational specialists who are members of ACT programs have enhanced productivity levels of clients (Russert & Frey, 1991) and that this enhancement leads to improvements in well-being (Juster, 1985c) that is likely reflected in clients' community adjustment levels (Cnaan et al., 1988; Neff, 1988). With specific reference to the CIP and ACCT programs the clients that they service have the most severe psychiatric disorders and they require the greatest assistance in obtaining work. The needs of clients in these programs are such that they may extinguish the programs' resources. In the CIP program, preparations for referrals to vocational specialists may require too much effort on the part of staff as they are already working to meet clients' daily needs. In the ACCT program the occupational therapists perform generalist functions of the team and thus they likely have minimal time to effectively address the vocational needs of this population.

5.3 Suitability of Time-Recall Diaries for Clients with Severe Psychiatric Disorders

The use of the recall time diary method was appropriate in obtaining data on the daily time use patterns of individuals with severe psychiatric disorders. During interviews that were conducted for this study most of the clients seemed to have no trouble in recalling the activities that they had engaged in on the day prior to the interview. For clients who had some difficulty in recalling their activities only one of them appeared to become distressed. However, when clients seemed to have some difficulty remembering activities, the interviewer used prompting procedures as recommended by Juster (1985a). The interviewer asked questions such as, "did you go outside anywhere?", "did you have a shower", "did you make breakfast", and so on. These questions were found to be effective in enhancing clients' memories of the activities that they had engaged in on the prior day, and they appeared to decrease the likelihood of clients becoming distressed when they did not remember.

Of all 27 clients who were interviewed only 2 of them made notes regarding the activities that they had engaged in on the day of interest. In these instances the investigator and client went through the recorded activities together to ensure that all required information was clearly written down. The other 25 clients reported the activities that they engaged in from memory. The length of the interviews varied from 20 to 60 minutes, with some clients requiring more interviewer probing than others as they tended to get off the topic a little. However it is believed that good recall of the activities was gained from basically all of the clients who were interviewed.

With respect to a population of individuals with severe psychiatric disorders recall time diaries were easy to administer, required minimal time on behalf of the investigator, and produced meaningful results pertaining to community adjustment levels. Due to these factors it is feasible that recall time diaries could be administered by ACT clinicians at regular temporal intervals. The information obtained from the diaries would reflect a more complete picture of the effectiveness of programs in enhancing clients' community adjustment levels. This would result in a gain in knowledge, that could be carried over to ACT program modifications, concerning which components need to be modified to maximally enhance clients' adjustment to community living.

5.4 Conclusions

This study revealed that time use patterns of individuals enrolled in CIP and ACCT programs differed significantly from the general population, and that the amount of time in productivity was especially low when compared to the general population. Although it was anticipated that these individuals would spend less time in productivity than the general population it was not predicted that there would be such a large difference (3.43 hrs vs. 9.3 hrs). This finding is important since productivity is related to well-being (Juster, 1985c) and it increases clients' community adjustment levels (Cnaan et al., 1988).

From interviewing clients in these programs it became obvious that the lack of productivity time was not related to their desires, as six of the clients said that they wanted to work again and believed that they would. Four of the participants stated that they had a boring life when they had finished reporting their daily activities. Seven

participants mentioned that their day lacked structure and that they would like to have more to do. They felt that the ACT programs that they were enrolled in did not provide them with the opportunity to work in an environment that was suited to their needs. One participant performed odd jobs in the community and said that he liked it because it gave him something to do during the day and it kept him busy. Participation in productive activities (except housework) would also increase the amount of time spent with other community members (Hayes & Halford, 1996).

Participants generally spent large portions of the day in activities that are known to provide little satisfaction, including napping and watching television, while spending minimal time in productivity. These findings suggest that ACCT and CIP program clients who were living in the community were not leading full and productive lives.

Although causal relationships could not be drawn, according to the Psychiatric Rehabilitation Model, the findings suggest that modifications to the standard ACT vocational component may have, at least partially, contributed to the low productivity levels of clients. Neither of the programs involved in this study included a dedicated vocational specialist as an essential ACT team member. The dedicated vocational specialists who were available to CIP clients, through a referral process from the parenting agency, did not significantly increase the amount of time CIP clients spent in work activities when compared to ACCT clients. Additionally, productivity levels for both groups were extremely low in comparison to the general population. Thus, there is a concern regarding clients' sense of well being and community adjustment levels.

5.5 Implications of the Study

Gaps in the literature on ACT that exist pertaining to an appropriate measure of clients' community adjustment levels have been identified throughout the thesis. The findings of this study have implications for clinicians and clients in ACT programs and for future research on ACT and time use. Ideally future research studies on ACT would have larger sample sizes and employ random selection procedures. This would increase the generalizability and power associated with the findings. The areas for future study that were promoted through this study are presented below:

- (1) Future research on ACT should include time use outcomes in determining the success of these programs.
- (2) Future research on ACT should compare time use outcomes for ACT programs that include a vocational specialist as a team member and for those that do not include a vocational specialist. This would permit stronger statements to be made regarding the importance of a vocational specialist to enhancing productivity outcomes.
- (3) Future research on ACT should address the finding that clients spend most of the day in sleep and passive leisure activities and therefore experience extremely low levels of satisfaction in comparison to the general population.
- (4) Future research on ACT should address the assumption that when clients spend more time alone than persons in the general population they are likely to experience a reoccurrence of symptoms.
- (5) Future research on time use should address the fact that data are variable for an individual. Time use research indicates that data reliability can be increased and cost-

effective if collected on a smaller sample for more than one day, instead of collecting data on a larger sample for one day. The findings from this study pertaining to data reliability for the two days were moderate. Thus, future research would be useful for determining the number of days that data should be collected per subject in order to provide the most reliable indicator of time use.

(6) Future research on ACT should address the possibility that time use patterns may be different for individuals with schizophrenia and for those with other psychiatric disorders (i.e.: mood disorder).

The major implication for clinicians of ACT programs is that through collecting daily time use data on clients they will gain a better picture of clients' productivity levels and whether clients' productivity needs are being met by the program. Relevant modifications could be made to the program if the findings regarding daily time use are unfavourable. Such modifications would be useful to clients as their daily time use patterns would be more similar to the general population and clients would experience an increased sense of community adjustment.

REFERENCES

Akabas, S. (1994). Workplace responsiveness: key employer characteristics in support of job maintenance for people with mental illness. Psychosocial Rehabilitation Journal, 17 (3), 91-99.

Anderson, M., Sherman, J., Sheldon, J., & McAdam, D. (1997). Picture activity schedules and engagement of adults with mental retardation in a group home. Research in Developmental Disability, 18 (4), 231-249.

Anthony, W., Cohen, M., & Danley, K. (1988). The psychiatric rehabilitation model as applied to vocational rehabilitation. In J.A. Ciardiello & M.D. Bell (ED.), Vocational Rehabilitation of Persons with Prolonged Psychiatric Disorders (pp. 59-80). Baltimore, Maryland: The John Hopkins University Press.

Anthony, W., Rogers, S., Cohen, M., & Davies, R. (1995). Relationships between psychiatric symptomatology, work skills, & future vocational performance. Psychiatric Services, 46 (4), 353-358.

Anthony, W. (1994). Characteristics of people with psychiatric disabilities that are predictive of entry into the rehabilitation process and successful employment. Psychosocial Rehabilitation Journal, 17 (3), 3-12.

Bachrach, L. (1991). Perspectives on work and rehabilitation. Hospital and Community Psychiatry, 42 (9), 890-891.

Bell, M., & Lysaker, P. (1996). Levels of expectation for work activity in schizophrenia: clinical and rehabilitation outcomes. Psychiatric Rehabilitation Journal, 19, 71-76.

Bell, M., Lysaker, P., & Milstein, R. (1996). Clinical benefits of paid work activity in schizophrenia. Schizophrenia Bulletin, 22 (1), 51-67.

Blankertz, L., & Robinson, S. (1996). Adding a vocational focus to mental health rehabilitation. Psychiatric Services, 47 (11), 1216-1222.

Bond, G., & Boyer, S. (1988). Rehabilitation programs and outcomes. In J.A. Ciardiello & M.D. Bell (ED.), Vocational Rehabilitation of Persons with Prolonged Psychiatric Disorders (pp. 231-263). Baltimore, Maryland: The John Hopkins University Press.

Bryman, A., & Cramer, D. (1994). Quantitative Data Analysis for Social Scientists (2nd ed.). New York, N.Y.: Routledge.

Burns, B., & Santos, A. (1995). Assertive Community Treatment: an update of randomized trials. Psychiatric Services, 46 (7), 669-675.

Canadian Association of Occupational Therapists and the Health services Dictorate, Health Promotion Branch, Health & Welfare Canada (1991). Occupational Therapy Guidelines for Client Centered Practice.

Clark, R. (1995a). Creating work opportunities for people with severe mental illness (response to "the economic advancement of the mentally ill in the community). Community Mental Health Journal, 31 (4), 396-401.

Clark, R. (1995b). Employment and security (response to "the economic advancement of the mentally ill in the community). Community Mental Health Journal, 31 (5), 493-498.

Cnaan, R., Blankertz, L., Messinger, K., & Gardner, J. (1988). Psychosocial rehabilitation: toward a definition. Psychosocial Rehabilitation Journal, 11 (4), 60-74.

Cornwall, M., & Murrell, P. (1993). Preexperimental, experimental, and quasi-experimental research designs. In C. E. Bork (ED.), Research in Physical Therapy (pp. 143-172). Philadelphia, Pennsylvania: J.B. Lippincott Company.

Deci, P., Santos, A., Hiott, D., Schoenwald, S., & Dias, J. (1995). Dissemination of Assertive Community Treatment programs. Psychiatric Services, 46 (7), 676-678.

Delespaul, P., & deVries, M. (1992b). The daily life of ambulatory chronic mental patients. In M. W. deVries (ED.), The Experience of Psychopathology: Investigating Mental Disorders in their Natural Settings (pp. 110-122). Cambridge, New York: Cambridge University Press.

deVries, M., & Delespaul, P. (1992a). Variability of schizophrenia symptoms. In M.W. deVries (ED.), The Experience of Psychopathology: Investigating Mental Disorders in their Natural Settings (pp. 97-109). Cambridge, New York: Cambridge University Press.

Dincin, J., Wasmer, D., Witheridge, T., Soback, L., Cook, J., & Razzano, L. (1993). Impact of assertive community treatment on the use of state hospital inpatient bed-days. Hospital and Community Psychiatry, 44 (9), 833-838.

Dow, G., & Juster, T. (1985). The validity and quality of time use estimates obtained from recall diaries. In F. T. Juster & F. P. Stafford (ED.), Time, Goods, and Well-Being (pp. 63-91). Ann Arbor, Michigan: The University of Michigan.

Drake, R., & Burns, B. (1995). Special section on Assertive Community Treatment: an introduction. Psychiatric services, 46 (7), 667-668.

Essock, S., & Kontos, N. (1995). Implementing Assertive Community Treatment teams. Psychiatric Services, 46 (7), 679-683.

Hambridge, J., & Rosen, A. (1994). Assertive community treatment for the seriously mentally ill in suburban Sydney: A programme description and evaluation. Australian and New Zealand Journal of Psychiatry, 28, 438-445.

Harvey, A., & Singleton, J. (1989). Canadian activity patterns across the life span: a time budget perspective. Canadian Journal on Aging, 8 (3), 268-284.

Hatfield, A., & Lefley, H. (1993a). Summary, conclusions, and implications. In Surviving Mental Illness: Stress, Coping, and Adaptation (pp. 177-188). New York: The Guilford Press.

Hatfield, A., & Lefley, H. (1993b). Community acceptance and self-perception. In Surviving Mental Illness: Stress, Coping, and Adaptation (pp. 100-113). New York: The Guilford Press.

Hayes, R., & Halford, W. (1996). Time use of unemployed and employed single male schizophrenia subject. Schizophrenia Bulletin, 22 (4), 659-669.

Jansen, M. (1988). The psychological and vocational problems of persons with chronic mental illness. In J.A. Ciardiello & M.D. Bell (ED.), Vocational Rehabilitation of Persons with Prolonged Psychiatric Disorders (pp. 35-46). Baltimore, Maryland: The John Hopkins University Press.

Juster, F. (1985a). The validity and quality of time use estimates obtained from recall diaries. In F. T. Juster & F. P. Stafford (ED.), Time, Goods, and Well-Being (pp. 63-91). Ann Arbor, Michigan: The University of Michigan.

Juster, F. (1985b). Conceptual and methodological issues involved in the measurement of time use. In F. T. Juster & F. P. Stafford (ED.), Time, Goods, and Well-Being (pp. 19-31). Ann Arbor, Michigan: The University of Michigan.

Juster, F. (1985c). Preferences for work and leisure. In F. T. Juster & F. P. Stafford (ED.), Time, Goods, and Well-Being (pp. 333-351). Ann Arbor, Michigan: The University of Michigan.

Juster, F., Courant, P., & Dow, G. (1985). A conceptual framework for the analysis of time allocation data. In F. T. Juster & F. P. Stafford (ED.), Time, Goods, and Well-Being (pp. 113-127). Ann Arbor, Michigan: The University of Michigan.

Kalton, G. (1985). Sample design issues in time diary studies. In F. T. Juster & F. P. Stafford (ED.), Time, Goods, and Well-Being (pp. 93-112). Ann Arbor, Michigan: The University of Michigan.

Keppel, G. (1991). The sensitivity of an experiment. In Design and Analysis: A Researcher's Handbook (pp. 62-91). Englewood Cliffs, New Jersey: Prentice Hall.

Kirsh, B. (1996). Influences on the process of work integration: the consumer perspective. Canadian Journal of Community Mental Health, 15 (1), 21-35.

Kramer, B. (1962). The activities program. In Day Hospital: A Study of Partial Hospitalization in Psychiatry (pp. 44-51). New York: Grune & Stratton.

Krupa, T., Eastabrook, S., & Gerber, G. (1997). Variations of assertive community treatment: a study of approaches and outcomes of four teams in south eastern Ontario. Funding Proposal to Ontario Ministry of Health.

Lachance, K., Santos, A., & Burns, B. (1994). The response of an Assertive Community Treatment program following a natural disaster. Community Mental Health Journal, 30 (5), 505-515.

Lafave, H., de Souza, H., & Gerber, G. (1996). Assertive Community Treatment of severe mental illness: a Canadian experience. Psychiatric Services, 47 (7), 757-759.

Lawton, P., Moss, M., & Fulcomer, M. (1987). Objective and subjective uses of time by older people. Journal of Aging and Human Development, 24 (3), 171-187.

Leete, E. (1989). How I perceive and manage my illness. Schizophrenia Bulletin, 15 (2), 197-200.

Lehman, A. (1995). Vocational rehabilitation in schizophrenia. Schizophrenia Bulletin, 21 (4), 645-656.

Lysaker, P., & Bell, M. (1995). Work rehabilitation and improvements in insight in schizophrenia. The Journal of Nervous and mental Disorders, 183 (2), 103-106.

Lysaker, P., Bell, M., & Bioty, S. (1995). Cognitive deficits in schizophrenia: prediction of symptom change for participators in work rehabilitation. The Journal of Nervous and mental Disease, 183 (5), 332-336.

MacFarlane, W., Dushay, R., Stastny, P., Deakins, S., & Link, B. (1996). A comparison of family aided assertive community treatment. Psychiatric Services, 47 (7), 744-750.

McCory, D. (1988). The human dimension of the vocational rehabilitation process. In J. A. Ciardiello & M. D. Bell (ED.), Vocational Rehabilitation of persons with Prolonged Psychiatric Disorders (pp. 208-218). Baltimore, Maryland: John Hopkins University Press.

McGrew, J., Bond, G., Dietzen, L., & Slayers, M. (1994). Measuring the fidelity of implementation of a mental health program model. Journal of Consulting and Clinical Psychology, 62 (2), 670-678.

McGrew, J., Bond, G., Dietzen, L., McKasson, M., & Miller, L. (1995). A multisite study of client outcomes in Assertive Community Treatment. Psychiatric Services, 46 (7), 696-701.

McGrew, J., & Bond, G. (1995). Critical ingredients of Assertive Community Treatment: judgements of the experts. Journal of Mental Health Administration, 22 (2), 113-125.

Mowbray, C., Bybee, D., Harris, S., & McCrohan, N. (1991). Predictors of work status and future work orientation in people with a psychiatric disability. Psychiatric Rehabilitation Journal, 19, 17-28.

Neff, W. (1988). Vocational rehabilitation in perspective. In J.A. Ciardiello & M.D. Bell (ED.), Vocational Rehabilitation of Persons with Prolonged Psychiatric Disorders (pp. 5-18). Baltimore, Maryland: The John Hopkins University Press.

Noble, J. (1998). Policy reform dilemmas in promoting employment of persons with severe mental illness. Psychiatric Services, 19 (6), 775-781.

Ontario Ministry of Health (1998). Standards for Assertive Community Treatment, 1-19.

Overall, J., & Gorham, D. (1962). The brief psychiatric rating scale. Psychological Reports, 10, 799-812.

Pentland, W., Harvey, A., Walker, J., & Smith, T. (1997). The relationship between time use patterns, health and well-being in men with spinal cord injury. Final Report (pp. 13-19). Thousand Oaks, California: Sage Publications.

Pett, M. (1997). Nonparametric Statistics for Health Care Research. Thousand Oaks, California: Sage Publications.

- Portney, L., & Watkins, M. (1993). Foundations of clinical research. Connecticut: Appleton & Lange.
- Robinson, J. (1985). The validity and reliability of diaries versus alternative time use measures. In F. T. Juster & F. P. Stafford (ED.), Time, Goods, and Well-Being (pp. 33-62). Ann Arbor, Michigan: The University of Michigan.
- Robinson, J. (1988). Time-diary evidence about the social psychology of everyday life. In J. E. McGrath (ED.) The Social Psychology of Time Use (pp. 134-150). California: Sage Publications.
- Russert, M., & Frey, J. (1991). The PACT vocational model: a step into the future. Psychosocial Rehabilitation Journal, 14 (4), 7-17.
- Rutman, I. (1994). How psychiatric disability expresses itself as a barrier to employment. Psychosocial Rehabilitation Journal, 17 (3), 15-33.
- Scheid, T., & Anderson, C. (1995). Living with chronic mental illness: understanding the role of work. Community Mental Health Journal, 31 (2), 163-175.
- Scott, J., & Dixon, L. (1995). Assertive Community Treatment and case management for schizophrenia. Schizophrenia Bulletin, 21 (4), 657-667.
- Shepard, K. (1993). Questionnaire design and use. In C. E. Bork (ED.), Research in Physical Therapy (pp. 176-203). Philadelphia, Pennsylvania: J.B. Lippincott Company.
- State of Rhode Island, Department of Mental Health, Retardation and Hospitals, Division of Mental Health and Management Services (1992). Mobile Treatment Team Program Standards, 1-17.

Statistical Package for the Social Sciences for Windows (Release 8.0)

[Computer software]. (1997). SPSS Incorporated.

Statistics Canada (1995). As time goes by...time use of Canadians. General Social Survey, 1-68.

Statistics Canada (1992). Time Use. General Social Survey.

Stein, L., & Test, M. (1979). From the hospital to the community: a shift in the primary locus of care. New Directions for Mental Health Services, 1, 15-32.

Stein, L., & Test, M. (1980). Alternative to mental hospital treatment. Archives of General Psychiatry, 37, 392-412.

Stevens, J. (1996). Two group multivariate analysis of variance. In Applied Multivariate Statistics for the Social Sciences (pp. 151-183). MahWah, New Jersey: Lawrence Erlbaum Associates.

Warner, R., & Polak, P. (1995). The economic advancement of the mentally ill in the community: 2 economic choices and disincentives. Community Mental Health Journal, 31 (5), 477-492.

Weeder, T. (1986). Comparison of temporal patterns and meaningfulness of the daily activities of schizophrenic and normal adults. Occupational Therapy in Mental Health, 6 (4), 27-44.

Appendices

Appendix A : Client Needs that are Addressed by the ACT Model

<u>Need</u>	<u>Explanation of how needs are addressed by the team</u>
Material resources i.e.: food, clothing, shelter	Assume responsibility for helping clients acquire these resources.
Coping skills i.e.: cooking, budgeting	Teach clients these skills in vivo where clients will need and use them.
Motivation to preserve and remain involved in life	Make available a system of support to help clients solve real life problems, to feel that they are not alone and that others are concerned.
Freedom from pathological dependent relationships i.e.: hospital, family	Provide sufficient support to keep the client involved in community life and to encourage growth toward greater autonomy.
Support and education of community members involved with clients	Provide support and education to help these community members to relate in a manner that is beneficial for the clients and acceptable to them.
A supportive system that assertively helps clients with previous five requirements	Programs must be assertive, involving clients in their treatment, and be prepared to go to the clients to prevent drop-out.

Note. From "Alternative to Mental Hospital Treatment," by M.A. Test and L.I. Stein, 1980, Archives of General Psychiatry, 37, P. 333.

Appendix B: Major Daily Time Use Categories and Subcategories

1. PRODUCTIVITY

- a. paid work and related activities
- b. household work and related activities
- c. volunteer work and related activities
- d. education and related activities
- e. day program activities

2. LEISURE

- a. socialization
- b. passive leisure
- c. active leisure

3. SLEEP

- a. essential sleep
- b. naps/incidental sleep

4. PERSONAL CARE

Appendix C: Comparison of Vocational Components of CIP and ACCT

<u>Comparisons</u>	<u>CIP</u>	<u>ACCT</u>
Dedicated Vocational specialists as team members	NO	NO
Vocational specialists available on site	YES	NO
Vocational services provided on site	YES	NO
Aim of vocational component is to Increase for clients	meaningful employment opportunities	community support available
Parenting agency	Kingston Psychiatric Hospital	Kingston Friendship Homes
Day program available on site	YES	YES

Appendix D: Script for Staff (to ask permission for researcher to approach client)

The (name of service) is part of a study that is researching the types of services we provide to clients and the effect of these services on clients. (name of service) is working with researchers from the Schools of Nursing and Rehabilitation and Queen's University on this study. (Name of research assistant) is the person from Queen's who is working on this study.

The researchers are interested in talking to people like yourself who have received some services from (name of team). They would like to ask you some questions about your daily life.

It is completely up to you if you would like to speak with (Name of research assistant). If you say no it won't affect the services you receive in any way.

Participating in the study will not cost you anything. Any expenses, such as travel expenses, will be covered by the research project.

The meetings for this study will take place in a private room at (name of service) or in your own home, whichever you prefer.

You can decide not to participate in this study at any time.

You will be invited to have a cup of coffee or a soft drink while you participate in the study.

People will be paid a small amount for participating in the study

If you would like to find out more about the study I will give (Name of research assistant) your name so that she can contact you to explain more about the study.

TO BE FILLED OUT BY STAFF MEMBER FOR CLIENTS WILLING TO MEET WITH THE RESEARCHER

Client name _____

Date study discussed _____

Preferred means of contact (please include phone number if the client would like to be contacted by telephone) _____

Appendix E: Client Consent form

Title of Project

Relationship between Client Productivity and Vocational Service Components in Assertive Community Treatment Programs.

Details of the Study

My name is Heather McLean. I am a Masters Student in Rehabilitation Therapy at Queen's University. I am working on a study to complete the requirements of my Masters Degree.

The purpose of this study is to examine daily time use patterns of participants by looking at the types of activities engaged in and the amount of time spent in those activities.

We are asking you to participate in this study because you are enrolled in (name of the program) .

What's Involved in the Study?

You will be asked to complete a brief face to face interview with me, on two different occasions, where I will ask you about how you spent the day before. You will be asked questions such as, what did you do throughout the day?, who were you with?, were you doing anything else at the same time?, and how did you get from one place to another? Each interview is expected to take less than one hour to complete. The person who will conduct all interviews is the investigator, myself, Heather McLean.

If you would like to participate then we will set up a time and place for the interviews. The place can be either the program site, a private area of your home, or some other private area.

Appendix E cont...

Participation in the study should not cost you anything. You will be given the money to cover any travel costs that you may have as a result of participating. You will also be paid ten dollars for participating in the interviews. This is a small sum of money to recognize the time and effort you put in to complete the study.

Potential Risks

No risks are anticipated from participating in this study. Some people may feel that sharing this information with the interviewer is an invasion of their privacy. However, this information is only gathered for research purposes and your name will only be known to me and my supervisor, Professor Terry Krupa.

Potential Benefits

You will receive both direct and indirect benefits from participating in this study. The direct benefit includes the opportunity that you will be given to talk about yourself. This is an opportunity that many people enjoy. The indirect benefit of this study is that the things we learn from talking with you may help others who will receive Assertive Community Treatment services in the future.

Assurance of confidentiality and anonymity

All information that will be obtained in this study will be gathered in a private location to ensure confidentiality. All of the information will be stored in a private location that only my supervisor (Professor Terry Krupa) and I have access to. Also, only my supervisor (Professor Terry Krupa) and I will have access to your names. Your name will be coded in order to ensure that your identification is kept confidential. Any information obtained in this study may be published as a masters thesis, in appropriate journals and presented at professional meetings. However, any research reports from the study will not identify you in any way. The reports will be written about everyone that participates in the study, as a group. After five years the written information will be destroyed and the only information remaining will be that kept on a computer database. The remaining

Appendix E cont...

information will not identify any of the participants in this study. However since this study is part of a larger study the remaining information, that will not contain any names, may be used for purposes of secondary analyses in future research.

Withdrawal from this study

Your participation in this study is entirely voluntary. If you decide to participate, you can withdraw your consent and discontinue to participate at any time. This will in no way affect the services that you receive (at name of the service)

Offer to answer questions

If you have any further questions or hesitations about this study please feel free to ask. If you think of questions at a later date you are welcome to call:

The investigator, Heather McLean, at 549-8398 or

The investigators' supervisor, Professor Terry Krupa at 545-6000 ext. 6236.

If you have any concerns about the study you can call Dr. Sandra Olney, the head of the School of Rehabilitation Therapy, at 545-6000 (ext: 6102).

Appendix E Cont...

Participation Statement

BY SIGNING THIS FORM, IT CERTIFIES THAT YOU HAVE READ THE INFORMATION TO ME. I UNDERSTOOD THE CONSENT FORM FOR THIS STUDY. I HAVE HAD THE PURPOSES AND PROCEDURES OF THIS STUDY EXPLAINED CLEARLY TO ME. I HAVE BEEN GIVEN SUFFICIENT TIME TO CONSIDER THE ABOVE INFORMATION AND TO THINK ABOUT WHETHER I WANT TO TAKE PART IN THIS STUDY. I HAVE HAD THE OPPORTUNITY TO ASK QUESTIONS AND FEEL SATISFIED WITH THE ANSWERS PROVIDED. I AM VOLUNTARILY SIGNING THIS FORM (ON MY OWN). I KNOW THAT I CAN CHANGE MY MIND AND NOT TAKE PART AT ANY TIME. I WILL STILL RECEIVE THE BEST CARE AVAILABLE. I HAVE BEEN LEFT A COPY OF THE CONSENT FORM..

Signature of participant

Date

Name of Participant (Please Print)

Date

MY SIGNATURE CERTIFIES THAT I HAVE CAREFULLY EXPLAINED TO THE PERSON THE NATURE OF THE RESEARCH STUDY AND, TO THE BEST OF MY KNOWLEDGE THIS PERSON CLEARLY UNDERSTANDS THE NATURE OF THE STUDY, ITS' DEMANDS, BENEFITS, AND RISKS.

Signature of Investigator

Date

Appendix F: Sample Time Diary Form

Time Begin/ End	Activity	Where?	Alone?	Part of ACT?	Doing >1 activity?
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7:00 a.m.

7:00 a.m. next day

Note: Left blank under time headings so the investigator can fill the times in at the meeting. Each client participates in activities for differing lengths of time so it could not be filled in before the meetings.

Appendix G: Daily Activity Codes from the 1995 Time Use Survey

Productive Activities

1. PAID WORK AND RELATED ACTIVITIES

a. Paid Work

- 011 work for pay at main job
- 012 work for pay at other job(s)
- 021 overtime work
- 023 unpaid work in a family business or farm
- 030 travel during work
- 040 waiting/delays at work
- 070 coffee/other breaks
- 832 hobbies done for sale or exchange
- 842 domestic home crafts done for sale or exchange
- 080 other work activities

b. Activities related to paid work

- 022 looking for work
- 060 idle time before/after work

c. Commuting

- 090 travel to/from work

2. HOUSE WORK/RELATED ACTIVITIES

a. Cooking/Washing Up

- 101 meal/coffee preparation
- 102 baking, preserving food, home brewing, etc.
- 110 food (or meal) cleanup

b. Housekeeping

- 120 indoor cleaning & tidying
- 130 outdoor cleaning
- 140 laundry/ironing, folding
- 151 mending/shoe care
- 152 dressmaking and sewing

c. Maintenance and Repair

- 161 interior maintenance and repair
- 162 exterior maintenance and repair
- 163 vehicle maintenance
- 164 other home improvements

d. Other Household Work

- 171 gardening/grounds maintenance
- 172 pet care
- 173 care of house plants
- 181 household administration i.e.: paying bills
- 182 stacking and cutting firewood
- 183 other household work (e.g. Put groc away)
- 190 travel; domestic work

c. Shopping for Goods and services

- 301 groceries
- 302 clothing, gas, etc.
- 303 take-out food
- 310 shopping for durable household goods
- 320 personal care i.e.: haircut
- 331 financial services i.e.: banking
- 332 government services i.e.: UIC
- 340 adult medical and dental care
- 350 other professional services
- 361 automobile maintenance/repair
- 362 other repair services i.e.: TV.
- 370 waiting for purchases/services
- 380 other shopping and services
- 390 travel: shopping for goods/services

d. Child Care

- 200 baby care-household chore
- 210 child care-household chore
- 220 helping/teaching/reprimanding
- 230 reading/talking/conversation with child
- 240 play with children
- 250 medical care-household chore
- 260 unpaid baby-sitting
- 281 other: child care
- 291 travel: transportation for household chore

3. SOCIAL SUPPORT/CIVIC/VOLUNTARY

a. Civic and Voluntary Activity

- 600 professional, union, general
- 610 political, civic activity
- 620 child, youth, family organization
- 630 religious meetings, organizations
- 651 fraternal and social organizations
- 652 support groups i.e.: al-anon, AA
- 660 volunteer work (organizations)
- 671 housework and cooking assistance
- 672 house maintenance and repair assistance
- 673 unpaid baby-sitting
- 674 transportation assistance
- 675 care for disables or ill
- 676 correspondence assistance
- 677 unpaid help for a business or farm
- 678 other unpaid work
- 680 other civic and volunteer activity
- 271 personal care -household adults

Appendix G continued...**3 b continued...**

- 272 medical care-household adults
- 282 other care for household adults
- 800 coaching
- 691 travel: civic and voluntary activity
- 692 travel: coaching
- 292 travel: transportation for household adults

4. EDUCATION AND RELATED ACTIVITY**a. Education and Related Activities**

- 500 full-time classes
- 511 other classes (Part time)
- 512 credit courses on television
- 520 special lectures: occasional
- 530 homework: course, career/self-development
- 550 breaks/waiting for class
- 560 lecture and special interest classes
- 580 other study
- 590 travel: education and related activities

5. DAY PROGRAM ACTIVITIES**a. Day Program Activities**

- 1001 work at program site for pay
- 1002 attend outing for meal/coffee
- 1003 prepare meal at site
- 1004 attend field trip
- 1005 attend presentation/meeting/class
- 1006 eat meal at site
- 1007 attend recreational event
- 1008 attend support group
- 1009 attend social club
- 1010 socialize at the site

Personal Activities

- 640 religious services/prayer/bible readings
- 693 travel: religious services
- 050 meals/snacks at work
- 060 meals/snacks/coffee at school
- 430 meals/snacks/coffee at home
- 431 other meals/snacks/coffee
- 410 personal medical care at home
- 470 relaxing, thinking, resting
- 400 washing, dressing
- 480 other personal care activities

Leisure Activities**1. SOCIALIZING**

- 791 travel: restaurant meals
- 440 restaurant meals
- 490 travel: sleep, meals/other personal activities
- 751 socializing at a home (no meal)
- 752 socializing at a home (with a meal)
- 950 talking, conversation, phone
- 792 travel: socializing in homes
- 760 socializing at bars, clubs (no meal)
- 753 other socializing i.e.: malls, hospitals
- 780 other social gatherings i.e.: weddings
- 793 travel: other socializing
- 1004 other socializing (with meal)

2. PASSIVE LEISURE

- 931 reading books
- 932 reading magazines
- 940 reading newspapers
- 900 listening to radio
- 920 listening to C.d.'s, tapes, records
- 961 reading mail
- 962 other (writing letters)
- 980 other media or communication
- 990 travel: TV, reading, other passive leisure
- 701 professional and sports events
- 702 amateur sports events
- 711 pop music, concerts
- 712 fairs
- 713 zoos
- 720 movies, films
- 730 opera, ballet, theater
- 741 museums
- 742 art galleries
- 743 heritage sites
- 912 watching TV (time shifted viewing)
- 913 watching rented or purchased movies
- 914 other tv viewing (home record movies)
- 911 watching tv (scheduled program)
- 1003 waiting for a ride to a leisure event

3. ACTIVE LEISURE

- 808 judo, boxing, wrestling, fencing
- 809 rowing, canoeing, kayaking, sailing
- 810 other sports i.e.: Frisbee, catch
- 811 hunting
- 812 fishing
- 813 boating

Appendix G continued....**Leisure Activities cont....**

- 814 camping
- 815 horseback riding, rodeos, jumping, dressage
- 816 other outdoor activities-excursions
- 821 walking, hiking
- 822 biking
- 831 hobbies done mainly for pleasure
- 841 domestic home crafts done mainly for pleasure
- 861 games, cards, arcades
- 862 video games/computer games
- 863 general computer use (not games)
- 850 music, drama, dance
- 871 pleasure drives as a driver
- 872 pleasure drives as a passenger (car)
- 873 other pleasure drives i.e.: tour bus
- 880 other sport or leisure activity
- 890 travel: active leisure
- 801 football, baseball, hockey, etc.
- 802 tennis, squash, racquetball, etc.
- 803 golf, miniature
- 804 skiing, ice skating, etc.
- 805 bowling, pool, etc.
- 806 exercises, yoga, weight lifting

Sleep Activities**1. NIGHT SLEEP**

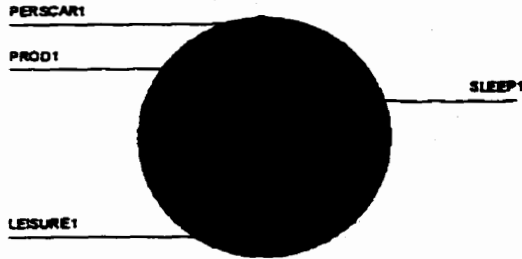
- 450 night sleep/essential sleep

2. NAPS

- 460 incidental sleep, naps

Appendix H: Time Allocation for Two Days with Groups Collapsed

Time Use During Day 1



Time Use During Day 2

