The State of Employment of Young Adults
With and Without Chronic Physical and Mental Conditions

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ABSTRACT

The purpose of this study was to describe the employment status of young adults age 20-29 years who lived with chronic conditions and compare their experiences to those young adults who do not have chronic conditions. A total of 4,744 young adults age 20-29 years were analyzed to explore the relationships between chronic health conditions and employment. Presence and amount of employment, the influence of education on employment, quality of work environment and income adequacy were examined. Data were obtained from the Canadian Community Health Survey, Cycle 1.2; a cross-sectional survey that collected information related to health standing, health care consumption and health determinants for the Canadian population. Respondents were organized into five groups according to their conditions: those who did not have any chronic health conditions, those with only chronic physical conditions, those with only chronic mental conditions, those with both chronic physical and mental conditions and those with "other" chronic conditions. General characteristics were described and separate analysis was conducted on those who were employed and those who were unemployed. Results indicated that the more chronic health conditions one lives with the greater the risk of unemployment. Young adults who live with physical and mental conditions, and those with multiple conditions perceive more job stress than their age mates. The number of conditions is negatively correlated to both education and income adequacy. Education is positively correlated to income adequacy. Income adequacy was difficult to interpret because of the way it is scored in the database. Other limitations of the study are noted in the discussion.
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For all of those young adults who persevere to be productive and successful in spite of all of the obstacles they face.
Chapter 1

Introduction

Meaningful work plays a significant role in people's lives. It gives people a degree of social recognition, some structure to their lives, a sense of purpose and meaning, and a sense of responsibility and self-efficacy; and enables them to interact with others with whom we share some common interests (Mowbray et al., 1997). Harder (2003) contends that a person's job milieu may well be the most significant group membership and concentration of time in their life. The majority of our lives are spent working, with our school years and retirement on either side (Hippolitus, 1985).

While several Canadian studies have reported on the economic burden of chronic health conditions (Badley 1995; Coyte et al., 1999; Rapoport et al., 2004; Stephens & Joubert, 2001) few have reported specifically on the young adult population (20-29 year olds). Although an analysis, by Rapoport et al. (2004), of a Canadian National Population Health Survey taken in 1998-1999 revealed that 27% of those under age 40 years lived with one chronic health condition and 11% of the same age group lived with more than one chronic health condition, there has been no recent published Canadian research on the state of employment among young adults (ages 20-29 years) with chronic health conditions.

The Purpose of This Study, Research Problem and Research Questions

Utilizing the data obtained by Statistics Canada from the Canadian Community Health Survey, the purpose of this study is to describe the employment status and experiences of young adults with primarily physical ("physical"), primarily mental ("mental"), and both physical and mental chronic health conditions ("both"), and compare this to the employment status of young adults who are not faced with chronic
physical or mental conditions. In addition a fourth group that represented 10% of the participants was identified and will be referred to as those with “other” conditions. This sub-group contains some variables which have been collapsed such as developmental disorders, dysthymia or eating disorder and any other long-term physical or mental condition. Participants who lived with paraplegia, traumatic brain or other permanent injuries would be included in this sub-group.

Three research questions will be evaluated:

Compared to their age mates,

1) What types of work are young adults with physical or mental conditions able to secure?

2) What is the perceived quality of work of respondents in the four subgroups?

3) What is the income adequacy in the four subgroups?

Chapter 2 is a review of the literature pertaining to employment, unemployment and underemployment and the effects of income upon young adults. It also discusses the trends of employment income in Canada and the potential effects on young adults.

Chapter 3 is an overview of the methods used in this study. The participants and the methods used in analysis are described in detail.

Chapter 4 describes the results and examines the statistical analysis. Comparisons between groups are discussed.

Chapter 5 is an interpretation of the results. Within this chapter the limitations of the study as well as implications for future research are also discussed.
Literature Review

Employment, Unemployment and Underemployment

Obtaining and keeping a good job is a benchmark of adult status in our society (Fourquean et al., 1991). According to Conger and Galambos (1997), choosing and preparing for a career is one of the major steps in the development of a young adult. During this process young adults are required to resolve differences between their ideals, values and goals and the realities of the adult working world. The re-evaluation of their perceptions of the adult world and how their own resources, strengths and limitations fit in is a large component of this process. Decisions they make during this time may have far reaching consequences, especially those involving specific education and training. These choices are often shaped by their experiences and career goals.

Historically the process of career choice was much simpler. Earlier societies offered fewer occupation choices and young adults were often familiar with them, through observing their parents or other adults perform work tasks, or through formal or informal apprenticeships (Conger & Galambos, 1997). Often these experiences paired youth with adult counterparts who provided mentorship in the passage from young adulthood to adult employment life. Changing of careers was not common once a career was chosen.

In today’s employment environment, in contrast, the task of career choice is viewed as a life span process in which young adults are continually seeking to find an optimal fit between their goals and values and the ever changing realities of the world of work. Thus as the job market changes, a person’s experiences grow and their characteristics evolve over time. This process creates new opportunities and choices to
make, which may involve additional financial, personal and social commitment to succeed (Conger & Galambos, 1997). It also requires young adults to be constantly mindful of changes in the employment market and to be extremely flexible and adaptable in order to be able to cope with this constant state of flux.

Career prospects exert some influence on young adults’ choice of careers. The availability of skilled and unskilled work will continue to be scrutinized and used to formulate strategies for encouraging and guiding young adults into preparation for their careers (Fryer, 1997). A local example of this is the report prepared by the College of New Caledonia for the Labour Market Partnership for Trades (2003) which provided an overview of the literature that existed and a “toolkit” which could be used to build strategies for the future. Some government sponsored initiatives have been a result of a recognized need for a particular trade or profession. One has to look no further for an example of this point than Prince George, where a federal government sponsored initiative is enabling youth to train for the different trades through the College of New Caledonia (CNC) in which acute shortages of workers have been identified (CNC, 2006). It could be argued that the role of these schemes is to socialize young adults into attitudes and habits that are convenient for employers or the economic chieftains and not sensitive to the rights of young people to self-determination and fulfillment of their self-destiny (Fryer, 1997).

The required adaptability, flexibility and the competitive nature of the job market may make equitable employment especially difficult for young adults with chronic health conditions, that is those conditions which are expected to or have lasted for six months or more. It is anticipated that research would demonstrate a higher risk of unemployment,
underemployment or employment in unskilled jobs with low wages among those with chronic conditions than among those without.

Over the past two decades the employment market has changed dramatically. Unionized semi-skilled jobs in which pay rates were reasonably high have been replaced by unskilled entry-level jobs at minimum wage (Fryer, 1997). There has been an increase in part-time, temporary and part-year work. According to Fryer (1997) the results are that many people spend the majority of their young adulthood drifting from one unsatisfying job, involuntary part-time work or unemployment through a short term training program into further under employment or another unsatisfying job. The insecurity of the economic market thwarts their activities and development of identities and many youth report feelings of disillusionment and cynicism (Baron, 2001). They may come to perceive the system as unfair and become alienated from it. In these insecure employment environments some groups are particularly subject to exclusion (Baron, 2001). With an abundance of unemployed youth competing for jobs, young adults with chronic physical and mental conditions may experience limited employment prospects.

There has been some discussion surrounding how employment or lack of it affects young adults. Borgen and Amundson (1987) found evidence of a slowing of psychosocial development within the group of young adults who were unemployed. Reactions to situations described by their participants were more consistent with those expected from adolescents (14-15 years old) rather than young adults (18-24 years old). Borgen and Amundson contend that their findings were consistent with previous studies by Tiggemann and Winefield (1984) and Gurney (1980). Questions that have been raised from these studies include: Does unemployment cause mental health disorders such as
depression? Does obtaining a job positively affect depression and/or self confidence? Others (Cott et al., 1999; Denton et al., 2004; Lahelma et al., 2006; Mathers & Schofield, 1998; Stronks et al., 1997; Takano & Nakamura, 2001) have studied the roles that employment has within the context of one's overall health. Numerous other studies (Hammarstrom & Janlert, 1997; Heubech et al., 1995; Morrell et al., 1994; Schaufeli, 1997) have been done to try to determine if unemployment contributes to mental illnesses such as depression. These studies have produced conflicting results.

As Mathers and Schofield (1998) pointed out, evidence of a relationship between unemployment and poor health has been emerging since the mid 1980s. Debate has occurred regarding the direction of the relationship and the influence of other factors such as socioeconomic status (SES). SES represents the place of an individual within the social stratification as a whole (Stronks et al., 1997). It is thought to be comprised of a class component (e.g. material resources an individual controls such as level of income, spending discretion or physical living conditions) and a status component (e.g. differences in lifestyle behaviours, education, or occupation). It is recognized that people within lower SES groups, on average, are less healthy than those within high SES groups (Stronks et al., 1997). The interrelationships between employment, SES and health are complex and influenced by many other factors such as individual characteristics, neighborhood characteristics, or family structure (Raphael et al., 2004). Raphael et al. (2004) stress the importance of longitudinal studies to adequately examine the different pathways between the various social determinants of health, such as employment and income, and their direct and indirect effects. Since one’s advantages and/or disadvantages may accumulate or fluctuate across their life, Raphael et al. (2004) believe that life-span
research may be able to explain how issues such as employment or income distribution play across one's life-span.

In a Swedish longitudinal study, Hammarstrom and Janlert (1997) found that unemployment was associated with changes in nervous complaints and depressive symptoms. They suggested that unemployment subjected young people to economic stress, lack of control and lack of meaningful expectations in their lives. Among factors that had been studied, long term unemployment was revealed to be the most significant aspect associated with the decline in psychological health. For women, unemployment within the past year was the most consistent forecaster of depressive symptoms (Hammarstrom & Janlert, 1997). These findings are consistent with findings reported by Morrell et al. (1994), in an Australian longitudinal survey which also concluded that unemployment made a significant contribution to psychological disorder in young adults.

In a Dutch longitudinal study, Schaufeli (1997) differentiated between unemployed school-leavers and unemployed college graduates. He concluded that unemployment had a negative impact on the psychological health of school-leavers, while college graduates appeared insignificantly affected by unemployment. Schaufeli stressed the importance of interpreting any findings regarding unemployment and psychological symptoms within the social and historical context in which the findings were observed. The state of being unemployed may be perceived in relationship to what the average experience is within that population, and economic environments are capable of changing between the time that observations are made and the date of publication of the studies.
Heubeck, Tausch and Mayer (1995) also found evidence of higher self-reports of distress among unemployed youths than their employed counterparts, however they found no difference in depression or feelings of loss of control between males and females. Their findings showed that those who used internal attributions of responsibility for solutions to their unemployment reported significantly less depression and feelings of loss of control. Thus, they concluded that there is substantial inconsistency in how youth cope with unemployment and it is these differences that should be further explored. Heubeck, Tausch and Mayer (1995) suggested that the main contributing factors to young adult’s psychological health was how they attributed the experience of unemployment and their ability to resolve their unemployed state.

According to Morrell et al. (1994), many mechanisms are likely implicated in the relationship between unemployment and a decrease in mental health. Life is multi-factorial and unemployment affects several aspects of one’s life such as reduction of disposable income, curtailment of activities, perceived lack of purpose, sociocultural factors, and relationship difficulties. Thus, the negative aspects of unemployment may have a cumulative, multifaceted negative effect on one’s mental health.

Fryer (1997) asserted that other social and cultural constructs are at least partially responsible for the link between unemployment and mental health. For example the condition of unemployment is perceived in a state of relativism, so that one may not necessarily consider themselves monetarily deprived in comparison to their peers. In a community with low unemployment a person would find it more distressing to be unemployed than in a community where job loss is high and there is a normalization of unemployment. This was consistent with factors suggested by Schaufeli (1997).
Hammarstrom and Janlert (1997) discussed the effect of having meaningful activities to occupy one’s time and how some of the youth in their survey filled their time with pleasurable activities during periods of unemployment. This was believed to have a moderating effect on the potential negative mental health consequences of unemployment.

Researchers who have attempted to show a causative relationship between unemployment and declining mental health have received criticism from others. Fryer (1997) points out that many existing studies of the relationship between employment and mental health do not control for pre-existing psychological distress or possible confounding events and therefore are unable to confirm causation. Often the data were collected using mailed survey questionnaires which relied on self-reporting of symptoms consistent with anxiety or depression.

Self-reporting has many issues with reliability and validity (Palys, 1992). Did the participant interpret the question as it was intended? Is the meaning of the response rating comparable from one participant to another? What is the difference in self reported attitudes and actual behavior? What is the place of the self-reported variable within the broader context? While self-reported data potentially contain these flaws, many problems can be minimized by using methods such as face to face interviews rather than mail out questionnaires, or relying on the diagnosis of a health care professional rather than the self-reporting of symptoms that may be considered consistent with a chronic health condition.

Variations in terminology used may also pose difficulties with interpreting comparisons. Different definitions of what constitutes “unemployment” or
underemployment" have occurred (Fryer, 1997). The differences lie not only in the period of time off work but in whether the person’s job matches their education and the job requirements (Dooley, 2003). Thus the biggest deficiency in previous research lies in the methodology used to try to explain experiences or suggest causation. Many of these flaws from past studies can be avoided generally by using definitions that quantify responses such as the number of hours worked per week at one’s job, or using full time versus part time categories, and refraining from attempting to explain causation with correlational data.

Job Characteristics

Evidence exists that links some job characteristics to health. Karasek et al. (1988) found that low decision latitude coupled with high psychological demands was associated with cardiovascular conditions. An example of this would be a cashier position at a busy store. People in this type of job do not have any authority to make decisions regarding the sales of goods, however may be subjected to and required to respond to numerous complaints from customers regarding the purchase of this merchandise. These jobs also often involve a high level of activity. Karasek (1979) recognized that the impact of various job strain measures was affected by the match between the challenge of the job and the person’s skills and/or degree of control in meeting these challenges. While the impact of job strain affected people at all levels, Karasek (1979) concluded that those with few opportunities to make decisions regarding how to meet the demands of their job were at highest risk of negative consequences of job strain. Social support from supervisors and co-workers and generalized interpersonal hostility have also been demonstrated to influence job satisfaction in several studies (Johnson, 1989; Johnson &
Hall, 1988; Karesek et al., 1981; Karesek & Theorell, 1990; Karesek, Triantis & Chaudhry, 1982; Schwartz et al., 1988). The effect that social support has upon health status of women was demonstrated in a study by Amick et al. (1998). The authors found that low social support in the job was associated with lower vitality, increased negative emotional states, increased perception of physical aches and pain, and increased difficulty performing work and other usual activities. These consequences may contribute to increased employee absenteeism and increased turnover within the job, that further contributes to the job demands and job strain.

**Employment and Earning Capacity**

The earning capacity for young adults employed in entry level jobs is much lower than for semi-skilled unionized positions. The pay rate of the majority of entry level positions is minimum wage. Minimum wage rates vary across Canada, from $6.00 per hour to $8.50 per hour (Human Resources and Social Development Canada, 2006). Several provinces, including BC, have a lower wage than the published minimum wage, for those who are students, those who make tips, or those who have less than 500 hours of work experience. Financial independence is difficult if not impossible at this wage. In comparison, the wages of semi-skilled unionized job range from $11.50 to $20.50 per hour depending upon the job and organization (Government of Canada, 2006).

Statistics Canada has produced several recent studies that examine some aspects of the employment market of Canadians (Chung, 2004; Morissette & Johnson, 2005; Morissette & Picot, 2005; Morissette & Zhang, 2005). These studies have found some changes in the types of jobs available and the wages earned over the past three decades. Morisette and Picot (2005) describe the increasing trend of “contingent” work,
especially among new employees. This results in the shift from permanent or longer term employment to temporary or part-time jobs. From 1989 to 2004 the number of newly hired employees in temporary jobs grew from 11% to 21%. For those with less than two years of seniority, the rise in temporary jobs grew from 14% in 1989 to 25% in 2004 (Morissette & Johnson, 2005). Among those who were identified as most likely to receive low wages were young adults (Chung, 2004).

Wages among new employees have dropped significantly since the 1980s (Chung, 2004; Morissette & Picot, 2005). Between 1981 and 2004, wages dropped 13% for those with two years or less seniority (Morissette & Johnson, 2005). Chung (2004) further documented that wages of low paid workers dropped the most of any wages.

The combination of contingent work with little or no job security and low wages is referred to as “precarious employment” by Vosko et al. (2003, p. 16), who describe four dimensions to determine whether a job is precarious. These dimensions are: a) degree of certainty of continuing the job, b) perception of control over the labor process (e.g., working conditions, wages), c) degree of regulatory protection (e.g., union, legislation), and d) level of income. Vosko et al. (2003) found that while some of these circumstances reflected differing compromises that a person makes between their employment and child care or education commitments, about 27% of part-time employees represented people who were involuntarily part-time.

Wages affect a person’s ability to create a reasonable standard of living. In their research Morissette and Zhang (2005) contend that continued periods of inadequate income may put people at risk of social segregation, hinder their ability to buffer income losses or unexpected income pressures, and impede their ability to become economically
independent. This may further encumber them in accomplishing what may be considered normal developmental milestones such as finding a spouse, buying a home or starting a family (Morissette & Zhang, 2005). Measurements have been created to evaluate income adequacy, in Canada, by Statistics Canada (2005).

The term “low income cut-off” refers to an income threshold calculated by Statistics Canada (2005). Low income cut-offs vary by family size and community size. They are intended to express the income level at which a family may need to spend a greater-than-average proportion (63% or more) of its income on basic necessities (food, shelter and clothing). Morisette and Zhang (2001) recommend that the low income rate be calculated on after-tax income because it would be a better indicator of one’s disposable income. Statistics Canada produces two sets of numbers to represent low income cut-offs; one based on total income and one based on after-tax income. (Statistics Canada, 2005). Statistics Canada (2005) also uses the term “low income measure” when evaluating income adequacy. “Low income measure” represents a fixed percentage (50%) of median adjusted family income. Adjustment occurs for the family size and composition and is thought to better take in to account the family’s needs. The low income measure is commonly used for making international comparisons. Researchers have used the low income cut-off rates as their reference point, however the “low income cut-offs” and “low income measures” are not the same value. For example, in 2002, a single person living in a rural area is considered below the low income cut-off if their before tax annual income is less that $13,371; however if they live in an urban
area with a population over 500,000, the low income cut-off is $19,423 (Statistics Canada, 2005). The before tax low income measure for a single person in 2002 was $16,263 regardless of where they lived.

One of the groups identified by Morissette and Zhang (2001) as being at risk for having low incomes are those who have “work limitations” (pg. 8). In an analysis of the years 1993-1998 they found that for those with “work limitations”, 50% lived in low income for one year and 16% had experienced low income for all six years. In contrast, for those without “work limitations” 19% lived in low income for one year and only two percent lived in low income for all six years (Morisette & Zhang, 2001).

Current personal earning capacity for young adults with chronic conditions is not well researched. In their study of the economic burden of mental health problems in Canada, Stephens and Joubert (2001) set a value of $15,000 per year to represent the loss of wages for a non-employed person. They believe this to be a very conservative estimate. The yearly earnings of young adults with chronic conditions is unknown.

**Chronic Conditions and Employment**

In Canada, a growing number of youth with chronic conditions are graduating from high schools and adult training programs (Freeze et al., 1999). Like anyone else, they hope to succeed in meaningful and reasonably lucrative work. Harder (2003) outlines and supports four reasons why work is considered to be an essential goal for persons with chronic conditions. These are: economic necessity, the high value that many societies place on the role of work in a prosperous and full life, the social network and relationships acquired through employment, and the organization and order it brings to one’s life. There are some aspects of living with a chronic health condition which may
have an even greater impact on the necessity to work. In addition to the usual day to day
operational costs that people must cope with, those with chronic conditions may be
required to shoulder additional expenses such as medication costs, special transportation
needs and other support services required to maintain their health and home environment
(Acton, 1981). Because their basic day to day expenses could be much higher than the
average person, it is especially important that their employment is able to provide them
with an income that is sufficient to support their additional basic needs.

Unfortunately there is evidence that despite protective legislation pertaining to
human rights and duty to accommodate principles, what young adults with chronic
conditions often face is “unemployment, underemployment or exploitive employment”
(Freeze et al., 1999, p.3). Yet, youth with chronic conditions who have been successful
in employment have often been characterized as being punctual, committed,
conscientious, good humored, with good attendance records and strong work ethics
(Freeze et al., 1999). It appears that unresolved difficulties which impede the successful
employment of young adults with chronic conditions continue to exist.

Harder (2003) describes three categories, previously identified by Stone and
Sawatski (1980), in which people who live with “disabilities” face challenges in
acquiring employment. They are: a) challenges at the beginning of their search for work
such as limited skills or experiences which can be transferable into the work
environment, b) negative beliefs held by managers such as the expectation of significant
modifications to the job, decreased productivity, conflict or difficulty with co-workers’
attitudes and c) difficulties within the interview process that may be related to the
person’s inability to articulate their skills and potential well enough to counteract any
misconceptions held by the interviewer. There may be very different employment challenges associated with individual chronic conditions.

There have been several recent studies (Bishop, 2002; Begley et al., 2000; Boonen et al., 2002; Gignac et al., 2004; Lacaille & Hogg, 2001; Longobardi et al., 2003; Stang et al., 1998) that examined specific chronic physical conditions and associated factors relating to employment. Such research has studied: fibromyalgia, arthritis and rheumatism, diabetes, epilepsy, inflammatory bowel disease, (eg. colitis, Crohn's) back pain and migraines. Attention has been focused on trying to understand the ways that people deal with the consequences of their conditions on their employment, perceptions of how their conditions impact their ability to gain and maintain employment, and work modification attitudes and behaviours. Although research consistently revealed varying degrees of association between each physical condition and employment difficulties, the age group of 20-29 years has seldom been studied. A small number of exceptions were found.

Evidence of lower employment participation rates within the 20-29 year age group with arthritis and rheumatism was found by Lucaille and Hogg (2001), from data collected for the 1994 Canadian National Population Health Survey. Longobardi et al. (2003) found evidence in the 1998 Canadian National Population Health Survey of reduced work force participation associated with inflammatory bowel disease within this age group. A Dutch population-based study by Boonen et al. (2002) found that work disability related to inflammatory bowel disease was highest among younger and more highly educated respondents compared to the general population.

Specific mental conditions such as depression and anxiety have received some research attention pertaining to the impact of these conditions upon employment.
status (Berndt et al., 1998; Haslam et al., 2003; Stephens & Joubert, 2001; Whooley et al., 2002). These authors found evidence that employment was affected by anxiety and depression. People with these conditions must cope with symptoms which may affect workplace performance and with effects of medications such as confusion, dizziness, nausea, and difficulties in decision making. In fact Haslam et al. (2003) found evidence that the side effects of medication, especially during the first few weeks of treatment, have as much negative impact upon the participant’s work performance as the symptoms associated with depression and anxiety. Health Canada (2002) estimates that approximately 20% of Canadians will experience a mental condition during their lifetime.

Only one of these above mentioned studies specifically examined the young adult age group. The CARDIA Study (Whooley et al., 2002) targeted people 18-30 years of age with anxiety and depression. This longitudinal study found that depressive symptoms were associated with subsequent unemployment and loss of income. No research has been found that examines the relationship between employment status and other specific mental conditions such as social phobia, agoraphobia, panic disorder or mania for the 20-29 year age group.

Neurodevelopmental disorders encompass a wide range of conditions such as dyslexia and other specific reading difficulties, fetal alcohol syndrome, Tourette Syndrome, Autism and Asperger Disorder. These conditions affect a wide range of abilities including social interaction, communication and imagination. Behaviours associated with these conditions have a major impact on a person’s ability to gain and
maintain employment (Patterson & Rafferty, 2001). According to Richardson and Ross (2000) approximately 10% of the population have a neurodevelopmental condition. The employment status for the age group 20-29 year olds with these types of disorders is unknown.

People do not necessarily live with only one physical and/or mental condition. Stephens and Joubert (2001) found an association between depression and increasing number of physical health problems. Newman et al. (1998) found that 39% of those with a mental condition had more than one mental condition. The authors also found that those with mental conditions were far more likely to have physical conditions and that this likelihood increased as the number of mental conditions increased. The number of conditions one had also affected her/his employment experience. Respondents with comorbid disorders reported more job stress and less job satisfaction than their age mates. They were also found to have the lowest level of education and were disabled longer by injuries than their age mates (Newman et al., 1998).

For those who live with chronic physical or mental conditions, alone or in combination, working in a supportive environment may be particularly important to their success. Storey (2003) discusses the importance of co-worker support and advocacy and emphasizes that appropriate training of coworkers in regards to techniques that are helpful in teaching and providing feedback to those with chronic conditions is vital to their success. Elements of coworker support include: advocacy, social skills instruction, physical prompts, mentoring, and ongoing skills training.
Relevant Canadian Legislation

In Canada, the principle of a duty to accommodate has been created from human rights statutes and case law decisions (Humphrey, 2002). It attempts to further develop an equitable workplace and has introduced an obligation on the part of the employer to facilitate the participation of their employee. The needs to be accommodated must relate to human rights legislation, therefore, qualifying needs include “an individual’s handicap, condition of pregnancy, creed (religious observance obligation), age or, arguably, status” (Humphrey, 2002, p.1). The obligation of a duty to accommodate applies to both existing employees and potential employees. The impacts of this duty upon the workplace are profound and complex and there are many workplace requirements that are potential sources for conflict as they pertain to a duty to accommodate. Briefly stated, it is the employer’s obligation to adjust workplace expectations or relax conditions to facilitate the participation of the employee. This may involve modifying duties, schedules, equipment or expectations. The employer may be expected to accept less from the employee than they would normally expect from other employees such as more absenteeism, the need for scheduling flexibility, re-organization of tasks, and transfer of some duties to another employee. In order to avoid this obligation to accommodate the employer must prove undue hardship. Although this legislation was introduced to protect the rights of people, it may, in fact, encourage employers to avoid accepting those with known conditions because of the anticipated modifications that they will be obligated to provide and the multifactoral consequences that may occur.
**The Present Study**

The purpose of this study will be to explore and describe the employment status of young adults with and without chronic physical or mental conditions. It will describe the employment status of the subgroups and examine whether a relationship exists between the subgroups and workforce participation (e.g., full time/ part time). As education may be a factor in how much a person chooses to participate in the workforce or the employability of the person, the relationship between education and employment will be evaluated. Four dimensions of job stress will be evaluated to determine which type of condition, if any, may be predictive of increased job stress. Job Stress dimensions are: decision authority, decision latitude: skill discretion, job demands and social support. The total household income adequacy will be evaluated. Since income has a significant effect upon one’s ability to be independent, the living arrangements of the subgroups will be evaluated. The purpose of this study is to identify if there are significant differences in the variables of interest within the subgroups of young adults with and without chronic conditions, and to describe specifically where those differences lay.
Chapter Two

Methods

A quantitative approach is used to describe the current employment picture of young adults with and without chronic physical and mental conditions. Data for analysis were obtained from the Public Use Microdata File of the Canadian Community Health Survey (CCHS), Cycle 1.2 – Mental Health and Well-being, published by Statistics Canada Health Statistics Division in 2004. The CCHS Public Use Microdata File provided a nationally representative sample of young adults and measured relevant aspects of health and employment.

The Canadian Community Health Survey

The Canadian Community Health Survey was a cross-sectional survey that collected information related to health standing, health care consumption and health determinants for the Canadian population. The survey was conducted in two cycles: Cycle 1.1 was a large sample, general population health survey, intended to provide estimates of population health at the health region level and Cycle 1.2 was a smaller survey designed to provide results on specific focused health topics (CCHS, 2004).

Cycle 1.2 data were collected between May 2002 and December 2002. One of the key objectives of Cycle 1.2 was to collect data on the economic, social, occupational and environmental determinants of health. The following summary of the survey’s design and methodology is based on documentation provided in the CCHS Survey Cycle 1.2 User Guide for the Public Microdata File (Statistics Canada, 2004).
The Public Use Microdata File conceals some variables in which the numbers are so small that they may potentially enable the identification of individuals and details such as geographic locations are grouped so that the smallest area size identifiable is the province. The one exception to this is Ontario, which was divided into seven geographical regions.

**Sample Design and Allocation**

Participants for Cycle 1.2 were obtained from the population 15 years or older who live in private occupied dwellings. Excluded were people living on Indian Reserves and on Crown Lands, Health Care Institution residents, full time members of the Canadian Armed Forces, and residents of certain remote regions. To provide reliable estimates at the national and provincial level, the allocated sample of each province was proportional to the square root of the estimated population in each province. A minimum sample size of 1,000 was set for each province. Each provincial sample was also proportionally allocated to urban and rural strata for the number of dwellings in each strata. Sample sizes were enlarged prior to data collection to account for out-of-scope dwellings (dwellings which had been selected but found to be in construction, seasonal, demolished, vacant or secondary) and non-responses. The personal-level response rate was calculated to be 89.0%. (CCHS, 2004).

**Questionnaire and Data Collection Method**

The CCHS Cycle 1.2 questionnaire was administered using a computer-assisted interviewing method. This method offers a number of data quality advantages over other data collection methods: 1) question text is customized automatically based on factors such as age, sex, date of interview and answers to previous questions, 2) automatic edits
to check for inconsistent answers or out-of-range responses are applied and on-screen prompts appear when an invalid entry is recorded, thus allowing for immediate feedback to the respondent and opportunity to correct any inconsistencies and 3) questions that are not applicable to the respondent are automatically skipped.

A computer assisted personal interview (CAPI) field test of 600 sample units was conducted in Alberta and Quebec prior to data collection. The purpose of this field test was to evaluate respondent’s reactions to the questions and to obtain estimates of time required for completion of the questionnaire. Field operations procedures, interviewer training and the computer assisted interview method were also tested.

Face to face interviews were the preferred method of completing the surveys. Telephone interviews were permitted only when the respondent refused to meet face to face or if travel costs were exorbitant. Telephone interviews were also allowed after initial contact was attempted in person. Nationally only 14% of the interviews were completed by telephone. No proxy interviews were permitted.

For most of the conditions of interest in the present study, the CCHS Cycle 1.2 survey questionnaire does not rely on reporting of symptoms consistent with chronic physical and mental conditions but directs respondents to only answer “yes” if the condition has been diagnosed by a health professional. This method assists in eliminating biases found in the self reporting of symptoms that are then grouped and associated with a condition. However, the survey also asks a number of screening questions for mental disorders of interest in the present study including: major depression, panic disorder, social phobia, mania, and agoraphobia. For the purposes of this study it was decided to include these data since the number of people with undiagnosed mental
conditions is unknown. Noteworthy is a study by Kessler et al. (2001) that found that less than 40% of their respondents with mental conditions were receiving stable treatment from a health care professional. Young adults were identified as a group more likely to have unmet treatment needs. The questions used in the CCHS Cycle 1.2 were based upon the World Mental Health version of the Composite International Diagnostic (WMH-CIDI), which is a standardized instrument for the assessment of mental disorders. The WMH-CIDI uses definitions and criteria of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) used by the American Psychiatric Association and ICD–10 (World Health Organization, 1992). CCHS has modified this instrument so that the mental conditions found are partially coded to the DSM-IV or DSM-III-R.

The CCHS Cycle 1.2 survey questions attempt to quantify responses to some dimensions by asking questions such as: “How many hours a week do you usually work at your job?”, and “Which of the following best describes the hours you usually work at your job (regular, rotating shift, split shift, on call etc.)?” rather than fit answers into categories such as “underemployed”. This method helps to mitigate some of the limitations identified in previous research.

Data Processing

As described in the CCHS Cycle 1.2 user guide, the majority of the editing occurred during the interview by the computer assisted interviewing application. This method rendered it impossible to enter out-of-range values and also controlled flow errors by ensuring that questions that did not apply to the respondent were not asked. On-screen warnings appeared for inconsistent answers and where appropriate corrective action was
taken at the time or edits were developed to be performed at Head Office after data collection.

Pre-coded answer categories were supplied for many variables. For the questions that allowed for a write in response the response was coded into one of the existing categories if the information duplicated that category, or coded into a new unique category.

To facilitate data analysis, variables were derived from original answers to questions. In some cases this merely involved collapsing response categories and in other instances several variables were combined to create a new variable.

Sample Buy-Ins

Prior to data collection the provinces of Ontario and Nova Scotia provided extra funds to enable a larger sample size. This provided for more reliable estimates for sub-provincial areas. Ontario added 7,702 sample units bringing the total sample units to 14,422. These units were allocated into seven regions within the province. Nova Scotia added 790 sample units bringing their total sample units to 2,750. With the exception of one region the units were allocated equally among six regions within the province.

Weighting

In order for any estimates created from the survey data to be representative of the national population and not just the sample itself, a user must incorporate survey weights into their calculations. A survey weight is given to each respondent that corresponds to the number of people within the general population that this respondent represents (CCHS, 2004).
The strategy used for weighting the CCHS Cycle 1.2 survey data involved eight different adjustments: initial weight, sample increase or decrease, stabilization, removal of out-of-scope units, household non-response, creation of personal level weight, person non-response and post stratification. A master weight was created by Statistics Canada to be applied to each case in order to correct for sample buy ins and ensure that the numbers are representative of the national population. For the analyses presented in this thesis, the mean of the master weight was calculated for the final sample for analysis (i.e., n = 4744) and then each participant’s master weight was divided by the final sample’s mean master weight. This calculation yielded standardized weights which ensured that the sample sizes reported for each analysis reflect the actual sample size and not the population size but still corrects for design effects.

**Participants**

A total of 5,349 respondents between the ages of 20 and 29 years participated in the CCHS Cycle 1.2. The categories of physical conditions identified by the survey include a diverse group of conditions. The categories of mental conditions that were diagnosed by a health care professional include situational and developmental conditions as well as selected psychiatric conditions.

Another group of respondents fell under the “other” conditions category. This group was a result of collapsing some variables in which the numbers were small (Autism, Asberger Disorder, Rett Syndrome, eating disorders) and including any other long term condition diagnosed by a health care professional. Those with paraplegia, quadriplegia, traumatic brain injury, fetal alcohol disorder as well as others would have been included in this group. Since the number of the group represented a sizable portion (10.6%) of the total sample, it was decided to analyze this group separately.
Data Analysis

Participants were organized into five independent sub groups: age mates (those without any chronic condition), those with only physical conditions, those with only mental conditions, those with both mental and physical conditions and those who have identified that they have an “other” chronic condition which has been diagnosed by a health care professional. Many of the participants in the “other” sub group also have physical and/or mental conditions. For some analyses, respondents were further grouped into those who had jobs (either full time or part time) during any of the past year and those who were unemployed for the entire past year. Only those who had data completed on all variables analyzed were included.

Subscale scores were created to measure the degree of perceived quality of each participant’s working experience. These variables measured the respondent’s perception of their job stress. The Decision Authority scale reflected the amount of freedom the participant had to decide how to do their job and how much input they were allowed regarding what happened on the job. The Decision Latitude: Skill Discretion subscale reflected the repetitiveness of the job, level of skill required and whether there were opportunities to learn new skills. The Job Demands subscale reflected the amount of physical effort required to perform the job, whether the respondent was free from conflicting demands and if the job was very hectic. The Social Support subscale reflected whether the supervisor or coworkers were helpful in getting the job done and whether the respondent was exposed to hostility or conflict from the people they worked with. These subscales were based upon a psychometric measure developed by Karaesk et al. (1979) in which higher scores reflect greater work stress. Karasek believed that “two important elements exist at the individual level: 1) the job demands placed on the worker and 2) the
discretion permitted the worker in deciding how to meet these demands” (Karasek, 1979, p. 285). This measure was originally created to measure the association between job characteristics and the development of cardiovascular disease. It was derived from two previous Swedish national surveys. For each measure, the reliability and validity were demonstrated by comparing them to other measures in the job stress literature, expert re-evaluations and statistical analysis to control for confounding variables. The subscale of “social support” was added into the model by Karesek et al. (1982) in subsequent research. For the purpose of this study each of these continuous variables was analyzed using hierarchical linear regression to evaluate whether a chronic condition or number of conditions was predictive for a dimension of job stress. In all of the regression analyses the condition sub-groups were entered simultaneously as the first block of variables predicting a dimension of job stress. At the second step, the number of conditions was added to determine if it explained a significant amount of the variability of a dimension of job stress. Beta weights were used to interpret the relative importance of the predictor variables.

Categorical variables were also created to measure the education achieved by participants and living arrangements (whether they were living independently or otherwise). Education completed was categorized into three groups: less than secondary education, secondary education, and partial or full post secondary education. Living arrangements classified respondents into three categories: living independently, not living independently and other. Income adequacy was assessed by using total household income which was then categorized into five categories based upon the number of people living in that household. Categorical variables were analyzed using chi-square. The expected
values shown in each table are based on the observed marginal values under the assumption of the null hypothesis which is that there is no relationship between the variables and therefore the marginal numbers should be reflected in the actual cell counts.

To assess the risk of unemployment as a function of condition or number of conditions an odds ratio was calculated as a cross-product of the entries in a two by two table. All data were analyzed using the Statistical Package for Social Sciences (SPSS) 14.0 program.
Chapter Three

Results

Descriptive analysis was conducted to determine the distribution of respondents' conditions. Table 1 illustrates the distribution of conditions diagnosed by a health care professional and expected to last or have already lasted for six months or longer among the respondents. The “Other” group includes those with Asberger Disorder, Rett Syndrome, Dysthmia, Eating Disorders and any other chronic condition not already inquired about. Table 2 represents the distribution of mental conditions identified upon symptoms reported by the respondents. The numbers found in both Table 1 and Table 2 represent the total respondents in the subgroups prior to exclusion for missing data. Overlaps occur between groups.
Table 1

Conditions Diagnosed by a Health Professional and Expected to Last or Have Already Lasted for Six Months or More Identified in the CCHS 1.2 Survey

<table>
<thead>
<tr>
<th>Physical</th>
<th>( n )</th>
<th>Mental</th>
<th>( n )</th>
<th>Other</th>
<th>( n )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
<td>615</td>
<td>Post Traumatic Stress Disorder</td>
<td>47</td>
<td>565</td>
<td></td>
</tr>
<tr>
<td>Fibromyalgia</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arthritis</td>
<td>240</td>
<td>Chronic fatigue</td>
<td>37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back problems</td>
<td>870</td>
<td>Psychosis</td>
<td>63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Migraine</td>
<td>680</td>
<td>Learning disability</td>
<td>223</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epilepsy</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart Disease</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ulcers</td>
<td>182</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bowel disorder</td>
<td>96</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thyroid condition</td>
<td>97</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. Data are unweighted. \( n = 3695 \)
Table 2
Mental Conditions Identified Based Upon Symptoms Reported by Respondent

<table>
<thead>
<tr>
<th>Condition</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>394</td>
</tr>
<tr>
<td>Mania</td>
<td>121</td>
</tr>
<tr>
<td>Panic Disorder</td>
<td>157</td>
</tr>
<tr>
<td>Agoraphobia</td>
<td>55</td>
</tr>
<tr>
<td>Social Phobia</td>
<td>273</td>
</tr>
</tbody>
</table>

*Note.* Data are unweighted. \( n = 1000 \)

Table 3
Final Number of Respondents by Subgroup

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Number</th>
<th>% of total n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Mates</td>
<td>2477</td>
<td>52.2%</td>
</tr>
<tr>
<td>Physical</td>
<td>1267</td>
<td>26.7%</td>
</tr>
<tr>
<td>Mental</td>
<td>239</td>
<td>5.1%</td>
</tr>
<tr>
<td>Both</td>
<td>286</td>
<td>6.0%</td>
</tr>
<tr>
<td>Other</td>
<td>474</td>
<td>10.0%</td>
</tr>
</tbody>
</table>

*Note.* Data are weighted. \( n = 4744 \)

The numbers found in Table 3 represent the final respondents after exclusions for missing data. There are no overlaps between these groups.
General Demographics

Descriptive analyses were conducted to reveal the characteristics of the 20-29 year old age group of respondents \((n = 4744)\). For a comparison of gender distribution between those who were employed and those who were unemployed see Table 4. Table 5 illustrates a comparison of marital status between those who were employed and those who were unemployed. For a comparison of school attendance between those who were employed and those who were unemployed see Table 6.

Table 4
Gender Distribution Among Those Employed and Those Unemployed (%)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Employed</th>
<th>Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>51.6</td>
<td>27.4</td>
</tr>
<tr>
<td>Female</td>
<td>48.4</td>
<td>72.6</td>
</tr>
</tbody>
</table>

Note. Data are weighted.

Table 5
Marital Status of Those Employed and Those Unemployed (%)

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Employed</th>
<th>Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>61.4</td>
<td>42.8</td>
</tr>
<tr>
<td>Married/common-law</td>
<td>37.3</td>
<td>54.1</td>
</tr>
<tr>
<td>Divorced/widowed/separated</td>
<td>3.1</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Note. Data are weighted.
Table 6

Percentage of Employed and Unemployed Participants Who Attended School (%)

<table>
<thead>
<tr>
<th>Student Status</th>
<th>Employed</th>
<th>Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full time student</td>
<td>20.9</td>
<td>21.6</td>
</tr>
<tr>
<td>Part time student</td>
<td>7.1</td>
<td>9.7</td>
</tr>
</tbody>
</table>

*Note.* Data are weighted.

*Employed Young Adults*

Descriptive analyses were run to explore some of the characteristics of employed young adults (n = 4239). This number represented 89.1% of the total number of all respondents included for analysis. Of the young adults that were employed during the past year, 83.8% were employed full time and 16.2% part time. The sales or service industry represented the largest type of employment for the participants (28.8%) followed by professionals (13.5%), trades or transportation (12.1%), clerical (11.4%), technologist (11.0%), and management (6.9%).

*Educational Attainment*

A chi-square analysis was conducted to evaluate the relationship between the type of condition and education attainment of young adults with jobs in the past year, $X^2 (8) = 27.23, p < .01$, (see Table 7). Among those who had not finished high school, there were more young adults with both physical and mental conditions or “other” conditions than expected, and fewer age mates than expected. Among those who completed secondary school there more young adults with physical, mental and both physical and mental conditions than expected and fewer age mates than expected. Among those who
completed some or all of their post secondary education there were fewer young adults
with physical, mental or both physical and mental conditions than expected and more age
mates and those with "other" conditions than expected. This indicates that young adults
with physical or mental conditions, either alone or in combination are less likely than
their peers to attend post secondary education whereas young adults with "other"
condition and age mates are more likely than their peers to attend post-secondary
education.

Table 7

<table>
<thead>
<tr>
<th>Condition</th>
<th>Less than Secondary</th>
<th>Completed secondary</th>
<th>Post Secondary partial or full</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age mates</td>
<td>192 (204.9)</td>
<td>433 (448.2)</td>
<td>1604 (1575.9)</td>
<td>2229</td>
</tr>
<tr>
<td>Physical condition</td>
<td>108 (104.5)</td>
<td>231 (228.6)</td>
<td>798 (803.9)</td>
<td>1137</td>
</tr>
<tr>
<td>Mental condition</td>
<td>21 (20.1)</td>
<td>48 (44.0)</td>
<td>150 (154.8)</td>
<td>219</td>
</tr>
<tr>
<td>Both Physical and Mental</td>
<td>40 (22.1)</td>
<td>59 (48.3)</td>
<td>141 (169.7)</td>
<td>240</td>
</tr>
<tr>
<td>Other</td>
<td>28 (37.4)</td>
<td>80 (81.8)</td>
<td>299 (287.7)</td>
<td>407</td>
</tr>
</tbody>
</table>

*Note. Data are weighted. X^2 (8) = 27.23, p = < .01*
Job Stress

A hierarchical linear regression predicting the participants’ perceptions of Decision Authority that is, the amount of freedom the participant had to decide how to do their job and how much input they were allowed regarding what happened on the job was calculated with the types of conditions in Step 1 and the number of conditions in Step 2 (see Table 8). Step 1 revealed that compared to their age mates, young adults with mental conditions, both physical and mental conditions, and “other” conditions were significantly less likely to perceive that they had the ability to decide how to perform their job or what happened on the job, $R^2 = .014, p < .01$. Step 2 revealed that the more conditions that young adults had the less likely that they were to have perceived the ability to decide how to perform their job or what happened on the job, $R^2$ change = .003, $p < .01$. When number of conditions was added to the equation, the significance of having a physical or mental conditions changes. What the second step shows is that physical and mental conditions each make unique contributions and predictions of perceived decision authority even when number of conditions is taken into account.
Table 8

Summary of Hierarchical Regression Analysis for Variables Predicting Participants' Perceptions of Decision Authority

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical condition</td>
<td>-.06</td>
<td>.03</td>
<td>-.03</td>
</tr>
<tr>
<td>Mental condition</td>
<td>.39</td>
<td>.06</td>
<td>.10*</td>
</tr>
<tr>
<td>Both physical and mental</td>
<td>.15</td>
<td>.06</td>
<td>.04*</td>
</tr>
<tr>
<td>Other</td>
<td>.14</td>
<td>.05</td>
<td>.05*</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical condition</td>
<td>-.15</td>
<td>.04</td>
<td>-.07*</td>
</tr>
<tr>
<td>Mental condition</td>
<td>.31</td>
<td>.07</td>
<td>.08*</td>
</tr>
<tr>
<td>Both physical and mental</td>
<td>-.04</td>
<td>.08</td>
<td>-.01</td>
</tr>
<tr>
<td>Other</td>
<td>-.03</td>
<td>.07</td>
<td>-.01</td>
</tr>
<tr>
<td>Number of conditions</td>
<td>.06</td>
<td>.02</td>
<td>.09*</td>
</tr>
</tbody>
</table>

Note. $R^2 = .014$ for Step 1; $R^2$ change = .003 for Step 2 ($p < .01$)

*p < .01

A hierarchical linear regression predicting the participant's perception of Decision Latitude: Skill Discretion (skill requirements) that is, repetitiveness of the job, level of skill required to perform the job and whether the respondent was required to continuously learn new skills, was calculated. Types of conditions were entered in Step 1 and the number of conditions in Step 2 (see Table 9). Step 1 revealed that compared to their age mates, young adults with mental conditions and those with both physical and mental conditions were more likely to have perceived that their job did not require a high level of skill, were required to do things over and over and that they had not been given the opportunity to learn new things, $R^2 = .012$, $p < .01$. Step 2 revealed that the more
conditions that young adults had the more likely they were to have perceived that their job did not require a high level of skill, had a high degree of repetition in the tasks and that they had not been given the opportunity to learn new things, $R^2$ change = .001, $p < .01$.

Table 9
Summary of Hierarchical Regression Analysis for Variables Predicting Participants' Perceptions of Decision Latitude: Skill Discretion

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical condition</td>
<td>.03</td>
<td>.03</td>
<td>.02</td>
</tr>
<tr>
<td>Mental condition</td>
<td>.31</td>
<td>.05</td>
<td>.09*</td>
</tr>
<tr>
<td>Both physical and mental</td>
<td>.26</td>
<td>.05</td>
<td>.08*</td>
</tr>
<tr>
<td>Other</td>
<td>.09</td>
<td>.04</td>
<td>.03</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical condition</td>
<td>-.02</td>
<td>.04</td>
<td>-.01</td>
</tr>
<tr>
<td>Mental condition</td>
<td>.26</td>
<td>.06</td>
<td>.07*</td>
</tr>
<tr>
<td>Both physical and mental</td>
<td>.13</td>
<td>.07</td>
<td>.04</td>
</tr>
<tr>
<td>Other</td>
<td>-.01</td>
<td>.06</td>
<td>-.01</td>
</tr>
<tr>
<td>Number of conditions</td>
<td>.04</td>
<td>.02</td>
<td>.07*</td>
</tr>
</tbody>
</table>

*Note: $R^2 = .012$ for Step 1; $R^2$ change = .001 for Step 2 ($p < .01$)

*p < .01

A hierarchical linear regression predicting the participants' perceptions of Job Demands that is, amount of physical effort required to perform the job, whether the respondent was free from conflicting demands and if the job was very hectic was calculated with the types of conditions in Step 1 and the number of conditions in Step 2 (see Table 10). Step 1 revealed that compared to their age mates, young adults with physical, those with both physical and mental conditions and those with "other"
conditions were more likely to have perceived that their job was hectic with conflicting demands, $R^2 = .009, p < .01$. Step 2 revealed that the more conditions a young adult had the more likely they were to have perceived that their job was hectic with conflicting demands, $R^2$ change = .003, $p < .01$.

Table 10

Summary of Hierarchical Regression Analysis for Variables Predicting Participants’ Perceptions of Job Demands

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical condition</td>
<td>.18</td>
<td>.03</td>
<td>.09*</td>
</tr>
<tr>
<td>Mental condition</td>
<td>.09</td>
<td>.06</td>
<td>.02</td>
</tr>
<tr>
<td>Both physical and mental</td>
<td>.19</td>
<td>.06</td>
<td>.05*</td>
</tr>
<tr>
<td>Other</td>
<td>.15</td>
<td>.05</td>
<td>.05*</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical condition</td>
<td>.08</td>
<td>.04</td>
<td>.04</td>
</tr>
<tr>
<td>Mental condition</td>
<td>-.00</td>
<td>.07</td>
<td>.00</td>
</tr>
<tr>
<td>Both physical and mental</td>
<td>-.02</td>
<td>.08</td>
<td>-.01</td>
</tr>
<tr>
<td>Other</td>
<td>-.04</td>
<td>.07</td>
<td>-.01</td>
</tr>
<tr>
<td>Number of conditions</td>
<td>.07</td>
<td>.02</td>
<td>.10*</td>
</tr>
</tbody>
</table>

*Note. $R^2$ = .009 for Step 1; $R^2$ change = .003 for Step 2 ($p < .01$)

*p < .01

A hierarchical linear regression predicting the participants’ perception of Job Support that is, whether the supervisor or coworkers were helpful in getting the job done and whether the respondent was exposed to hostility or conflict from the people they worked with was calculated with the types of conditions in Step 1 and the number of conditions in Step 2 (see Table 11). Step 1 revealed that compared to their age mates
young adults with physical, mental, those with both physical and mental and those with "other" conditions were less likely to have perceived support from supervisors or co-workers and more likely to have perceived hostility from the people that they worked with, $R^2 = .022, p < .01$. Step 2 revealed that the number of conditions was not significant in predicting perceived social support, $R^2$ change = .001, $p < .01$, but the relationship between perception of social support and different conditions was already significant. When number of conditions was added to the equation, the significance of having "other" conditions changed and was no longer significant. What the second step showed is that "other" conditions make a unique contribution to prediction of perceived social support even when number of conditions is taken into account.

Table 11
Summary of Hierarchical Regression Analysis for Variables Predicting Participants' Perceptions of Social Support

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical condition</td>
<td>.14</td>
<td>.03</td>
<td>.08*</td>
</tr>
<tr>
<td>Mental Condition</td>
<td>.26</td>
<td>.05</td>
<td>.08*</td>
</tr>
<tr>
<td>Both physical and mental</td>
<td>.38</td>
<td>.05</td>
<td>.12*</td>
</tr>
<tr>
<td>Other</td>
<td>.18</td>
<td>.04</td>
<td>.07*</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical condition</td>
<td>.10</td>
<td>.03</td>
<td>.06*</td>
</tr>
<tr>
<td>Mental condition</td>
<td>.23</td>
<td>.06</td>
<td>.07*</td>
</tr>
<tr>
<td>Both physical and mental</td>
<td>.29</td>
<td>.07</td>
<td>.09*</td>
</tr>
<tr>
<td>Other</td>
<td>.10</td>
<td>.06</td>
<td>.04</td>
</tr>
<tr>
<td>Number of conditions</td>
<td>.03</td>
<td>.02</td>
<td>.05</td>
</tr>
</tbody>
</table>

Note. $R^2 = .022$ for Step 1; $R^2$ change = .001 for Step 2 ($p < .01$)

*p < .01
Income Adequacy

A chi-square test was calculated to evaluate the relationship between the income adequacy and condition of young adults with jobs in the past year. The relationship was significant, $X^2(16) = 41.13, p < .01$, (see Table 12). Among those in the lowest income there were more young adults with both physical and mental conditions than expected and fewer young adults with physical conditions than expected. Among the lower middle income category there were more young adults with both physical and mental conditions than expected and fewer young adults with physical conditions than expected. Among the middle income group there were more young adults with mental, both physical and mental conditions than expected and fewer young adults with “other” conditions, physical conditions and age mates than expected. Among the upper middle income bracket there were more young adults with physical and mental conditions than expected and fewer young adults age mates than expected. Among the highest income bracket there were more age mates and young adults with physical conditions than expected and less young adults with mental and both physical and mental conditions than expected. These results indicate that young adults with mental conditions or both physical and mental conditions are more likely to be making low income and young adults with no conditions, those with only physical conditions or “other” conditions are more likely to be making higher incomes.
Table 12

Income Adequacy of Employed Young Adults With Varying Levels of Income Adequacy as Function of Condition (expected number in parentheses)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Lowest</th>
<th>Lower Middle</th>
<th>Middle</th>
<th>Upper Middle</th>
<th>Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age mates</td>
<td>63</td>
<td>131</td>
<td>424</td>
<td>812</td>
<td>798</td>
</tr>
<tr>
<td></td>
<td>(61.1)</td>
<td>(133.3)</td>
<td>(430.3)</td>
<td>(818.5)</td>
<td>(782.8)</td>
</tr>
<tr>
<td>Physical</td>
<td>22</td>
<td>63</td>
<td>209</td>
<td>422</td>
<td>421</td>
</tr>
<tr>
<td></td>
<td>(31.2)</td>
<td>(68.0)</td>
<td>(219.6)</td>
<td>(417.7)</td>
<td>(400.5)</td>
</tr>
<tr>
<td>Mental</td>
<td>6</td>
<td>14</td>
<td>51</td>
<td>84</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>(6.0)</td>
<td>(13.0)</td>
<td>(42.1)</td>
<td>(80.1)</td>
<td>(76.8)</td>
</tr>
<tr>
<td>Both</td>
<td>15</td>
<td>15</td>
<td>65</td>
<td>89</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>(6.6)</td>
<td>(14.4)</td>
<td>(46.4)</td>
<td>(88.2)</td>
<td>(84.5)</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>30</td>
<td>68</td>
<td>147</td>
<td>152</td>
</tr>
<tr>
<td></td>
<td>(11.2)</td>
<td>(24.3)</td>
<td>(78.6)</td>
<td>(149.5)</td>
<td>(143.4)</td>
</tr>
</tbody>
</table>

*Note.* Data are weighted. $X^2(16) = 41.13, p < .01.$

**Living Arrangements**

A chi-square test was run to evaluate the relationship between the condition and living arrangements. The results were not significant, $X^2(8) = 17.39.$ The proportion of young adults living independently was distributed evenly among the subgroups.

**Unemployed Young Adults**

Descriptive analyses were run to explore some of the characteristics of young adults ($n = 514$) who had been unemployed during the preceding year. This number represented 10.9% of the total number of respondents included for analysis.
The risk of being unemployed was evaluated as a function of type and number of conditions (see Table 13). The risk of unemployment was significantly higher for young adults with both physical and mental conditions, and “other” conditions than for age mates with no conditions. The risk of unemployment increased as number of conditions increased.

Table 13
Risk of unemployment as a function of condition or number of conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>OR</th>
<th>CI (95%)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>1.02</td>
<td>0.81-1.29</td>
<td>0.84</td>
</tr>
<tr>
<td>Mental</td>
<td>0.83</td>
<td>0.50-1.37</td>
<td>0.45</td>
</tr>
<tr>
<td>Both physical and mental</td>
<td>1.61*</td>
<td>1.13-2.28</td>
<td>0.00</td>
</tr>
<tr>
<td>Other</td>
<td>1.43*</td>
<td>1.06-1.92</td>
<td>0.01</td>
</tr>
<tr>
<td>1-3 conditions</td>
<td>0.98</td>
<td>0.84-1.14</td>
<td>0.77</td>
</tr>
<tr>
<td>4-5 conditions</td>
<td>1.55*</td>
<td>1.02-2.33</td>
<td>0.03</td>
</tr>
<tr>
<td>6 or more conditions</td>
<td>3.91*</td>
<td>2.21-6.85</td>
<td>0.00</td>
</tr>
</tbody>
</table>

*p < .05.

Educational Attainment

A chi-square test was run to evaluate the relationship between the type of condition and education of those young adults without jobs in the past year. The relationship was significant, $X^2 (8) = 19.50, p < .01$, (see Table 14). Among those who
had not completed secondary education there were more young adults with both physical and mental conditions or “other” conditions than expected and fewer age mates than expected. More young adults with both physical and mental conditions and “other” conditions had completed secondary school than expected. More age mates and young adults with mental conditions had completed some or all of post secondary education than expected and fewer young adults with both physical and mental and “other” conditions had completed some or all of post secondary education than expected. The results indicate that those young adults with both physical and mental conditions and “other” conditions are less likely to have higher education than their peers.

Table 14

Number of Young Adults Without Jobs who have Varying Levels of Education as Function of Condition (expected number in parentheses)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Less than Secondary</th>
<th>Completed secondary</th>
<th>Post Secondary partial or full</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age mates</td>
<td>54 (65.1)</td>
<td>51 (54.0)</td>
<td>143 (128.8)</td>
<td>248</td>
</tr>
<tr>
<td>Physical condition</td>
<td>34 (34.4)</td>
<td>27 (28.5)</td>
<td>70 (68)</td>
<td>131</td>
</tr>
<tr>
<td>Mental condition</td>
<td>5 (5.5)</td>
<td>1 (4.6)</td>
<td>15 (10.9)</td>
<td>21</td>
</tr>
<tr>
<td>Both Physical and Mental</td>
<td>17 (10.6)</td>
<td>14 (8.6)</td>
<td>15 (20.9)</td>
<td>46</td>
</tr>
<tr>
<td>Other</td>
<td>25 (17.9)</td>
<td>19 (14.8)</td>
<td>24 (35.3)</td>
<td>68</td>
</tr>
</tbody>
</table>

Note. Data are weighted. $X^2(8) = 19.50, p < .01.$

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Living Arrangements and Income

A chi-square test evaluating the relationship between living arrangements and condition of young adults without jobs in the past year was not significant, $X^2 (8) = 10.02$. The proportion of young adults living independently was distributed evenly among the subgroups. A chi-square test evaluating the relationship of income and condition for the same group of young adults was not significant, $X^2 (16) = 29.56$, however it did reveal that 8.7% of the unemployed young adults lived in the highest income category.

Correlations

In order to tie some of the results found together, bivariate correlations were run between the number of conditions, education, and income adequacy (see Table 15). Education was positively correlated with income adequacy in both employed and unemployed groups. The number of conditions was negatively correlated with both education and income adequacy in both employed and unemployed groups of young adults.

Table 15

Correlations Between Education, Income Adequacy and Number of Conditions

<table>
<thead>
<tr>
<th></th>
<th>Employed</th>
<th>Unemployed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>income adequacy</td>
<td>education</td>
</tr>
<tr>
<td>Number of conditions</td>
<td>-0.06*</td>
<td>-0.06*</td>
</tr>
<tr>
<td>Education</td>
<td>0.16*</td>
<td>1.0</td>
</tr>
<tr>
<td>Income adequacy</td>
<td>1.0</td>
<td>0.16*</td>
</tr>
</tbody>
</table>

* $p < 0.01$

Note. Data are weighted
Chapter Five

Discussion

The purpose of the present study was to evaluate the state of employment of young adults with and without chronic conditions. Data from the CCHS Cycle 1.2 were used to evaluate three main dimensions: employment status, job stress and income adequacy.

It is unknown how the percentage of unemployed young adults in this study (10.9%) compares to the overall unemployment rate for that year because of the different methodologies used. However, it is interesting to note that during the year 2002, the average unemployment rate was 7.7% in Canada (Statistics Canada, 2003).

*Employment Status as a Function of Condition*

Disparities between the subgroups were not as dramatic as anticipated. Compared to their age mates those with only physical and only mental conditions appeared to have the same ability to find employment. However, young adults with both physical and mental conditions were more likely than their age mates to be unemployed, as were those with "other" conditions. The number of conditions was also linked to employment status. Young adults with four or more conditions were more likely to be unemployed than were young adults with no conditions. The risk of unemployment appears to be related to the number of conditions that one lives with rather than what type of condition one had. The number of conditions a person had was negatively correlated with both education and income adequacy. While not surprising, this provides further support to the concept of how interrelated factors such as education and number of conditions are with outcomes such as employment and income adequacy. This is noteworthy because according to
Morissette and Zhang (2001) those with higher education are more likely to either avoid low income or move from it more quickly because of their employability and also because their wages are more likely to increase more rapidly than their uneducated counterparts.

The Impact of Education on Employment and Income

The results do not support an explanation that attendance in full time studies was a factor in unemployment overall. The same percentage of employed young adults were also full time students as those who were unemployed. The sub groups of conditions were evenly represented within unemployed young adults who were also full time students.

Education was positively correlated to income adequacy even among the group who were unemployed for the previous year. This is consistent with findings by Chung (2004). One possible explanation is that being involved in education programs permits individuals to generate some income through student loans, grants or other income assistance programs. Another possibility is that the income reported is attributed to another member of the household since income adequacy categories reflected household income, not personal income.

Job Stress

Among young adults who were employed, measurements of job stress consistently showed that those with physical conditions, mental conditions, both physical and mental conditions, and “other” conditions perceived more job stress and less support from supervisors and co-workers. For all of the measured subscales of job stress except social support the higher the number of conditions the more likely a person was to perceive work related stress. This is consistent with findings reported by Newman et al.
(1998) who found that those with comorbid conditions reported more job strain that their peers. Because the number of respondents was large the relationship between the number of conditions and job stress was significant even though the effect size was rather small. However, this is still noteworthy because of the potential negative impact that a lack of support from coworkers and supervisors may have for a young adult, especially as they are in beginning stages of building their careers. If people are not able to benefit from social support at work their underlying conditions may be further negatively impacted. The consequences from this may lead to decreased self esteem and the development of “learned helplessness” (Firestone & Marshall, 2003). When this occurs at the beginning of a lifetime of career choices the effects could be disastrous for the young adult. Since a connection between job stress and some negative physical and mental health states has been shown (Johnson, 1989; Johnson & Hall, 1988; Karasek et al., 1981; Karasek & Theorell, 1990; Karasek, Triantis & Chaudhry, 1982; Schwartz et al., 1988), it is easy to imagine how job stress could exacerbate or further compound the symptoms felt by those with physical and/or mental conditions. Society may also pay a price for this negative consequence if the young adults become permanently reliant upon social assistance rather than face excessive stress at work.

Income Adequacy

Income adequacy was measured using five categories: lowest income, lower middle income, middle income, upper middle income and highest income. These categories were based upon total before-tax household income and the number of people living in the household. At first glance one might conclude that this population enjoyed relatively lucrative employment over all, however any interpretation of this variable should be done with caution. If a comparison is made between the before-tax income
level used for these categories and the low income measures, the respondent would have to be represented in the highest income before one could be assured that none of the households live below the low income measure (depending upon the composition of the household). If a comparison is made between the before-tax income level used for these categories and the before-tax low income cut-off, the respondent would have to be represented in the upper middle income before one could be assured that none of the respondents lived below the low income cut-off (depending upon the size of the household and where they lived). For example about one in five employed young adults had a total household income that was considered to be “middle income”. A household could fall into this category if they had a collective income of $30,000. and a family composition of five members. In fact this family would be considered to be living beneath the low income cut-offs established by Statistics Canada in 2002 for all community sizes except rural. Any interpretations of income adequacy should use caution to not over estimate this population’s average discretional income or buying power.

Limitations

The limitations of this study relate to some aspects of the design of the study. The sample excluded those who were clientele of institutions. By using this exclusion criteria those who were the most ill during that time period that the survey took place were not represented. Since the life of a person with a mental condition may be comprised of periods where intense psychological support is necessary and periods of relative full function, it is impossible to speculate what the status of employment is for these people.

The questionnaire is lengthy which may make thoughtful and accurate response difficult for some people, especially those with mental conditions. According to Choi
(2004) lengthy questionnaires can induce fatigue, which can affect how the respondent interprets the question and therefore, the answer. The process is also reliant on the respondent’s cooperation, which may exclude those who are experiencing more severe symptoms from mental disorders such as social anxiety or paranoia. In other words the population represented by the mental group is most likely a group who were experiencing relatively good management of their symptoms and able to function at a near average level. It is unclear how well this group represents the general population who is dealing with mental conditions.

The physical conditions that were chosen to survey also have a wide variability in the severity and length of time of symptoms that people experience. It is conceivable that one could have more than one of these conditions but still enjoy relative good health during this age period. Some physical conditions such as arthritis may have minimal effect upon ones function during their young adult life but may have a profound effect later on. It is difficult to evaluate the results of the “other” conditions group because it is not known exactly which conditions are represented within this group.

The categories used to evaluate income adequacy may not accurately represent the buying capacity of respondents. It is unclear if their wages would have allowed them the ability to buy a home or a vehicle or invest in an education fund for their children or a retirement fund for themselves.

Implications For Future Research

There are several directions that future research should take to ensure that a comprehensive understanding of the employment status of young adults is reached.
A longitudinal study may offer more information regarding how these conditions affect employment over a person's aging process. For example, a person with arthritis may cope very well at age 25 years but may experience a marked limitation of activity at age 45 years, which could affect their employment or complications of conditions such as diabetes become much more apparent as one ages. It would also be useful to use a case control methodology over several decades as this would enable the evaluation of the ability of those with chronic conditions to move up in careers and out of low incomes in comparison to their age mates. This process would better identify and evaluate the accumulations or fluctuations of a person's advantages or disadvantages over their life span as proposed by Raphael et al. (2004).

It is also important to understand if and how young adults move out of low income. Of those who were found to live in low income whether they be employed or unemployed, how many of them will continue to live in low income ten years later? What factors aid the movement out of low income and what factors become barriers to moving out of low income? How can these barriers be overcome?

In order to better understand why those with both physical and mental conditions, those with multiple conditions and those in the "other" group have a greater risk of unemployment the perspective of employers should be explored. Analysis should be focused towards determining if a bias towards hiring people with chronic conditions exists, what knowledge the employer has of the human rights and duty to accommodate legislation and if these factors have influenced their hiring practices. It may also be useful to explore the expectations that employers have of young adults, especially as they pertain to workplace conditions and time commitments.
It would be helpful to have the perspectives of young adults with chronic conditions. A phenomenological study of young adults with chronic conditions who are both employed and unemployed could uncover some of the issues they face and also some of the coping strategies they have developed. Insights gained may be useful in a variety of ways, from revising legislation to providing education designed specifically towards establishing a career path.
References


Badley, E. (1995). The economic burden of musculoskeletal disorders in Canada is similar to that for cancer, and may be higher. *Journal of Rheumatology*, 22 (2), 204-206.


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