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A social space approach to the health lifestyles of persons after spinal cord injury.

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A SOCIAL SPACE APPROACH TO THE HEALTH LIFESTYLES OF PERSONS AFTER SPINAL CORD INJURY

by

LOUISE R. THIBODAUX

A DISSERTATION

Submitted to the graduate faculty of The University of Alabama at Birmingham,
in partial fulfillment of the requirements for the degree of
Doctor of Philosophy

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ABSTRACT OF DISSERTATION
GRADUATE SCHOOL, UNIVERSITY OF ALABAMA AT BIRMINGHAM

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Title A Social Space Approach to the Health Lifestyles of Persons After Spinal Cord Injury

This study used a social space approach to examine patterns of activity and health 2 years after traumatic spinal cord injury. The aim was to explore how enactment of core social roles influences health lifestyle and results in distinct patterns of social participation. The cross-sectional data came from the Model Spinal Cord Injury Systems of Care (MSCISC) through the National Spinal Cord Injury Statistical Center (NSCISC). Data were from second anniversary contacts with patients who had been followed by 18 rehabilitation sites in the Model Systems network. The study used *k*-means cluster analysis to identify 4 patterns of engagement in 7 social roles that combine into distinct types of social participation. It is argued that these 4 patterns comprise separate lifestyles that are distinguished by chances and choices for specific types of health outcomes. Following the method of Pierre Bourdieu, each lifestyle was further evaluated by correspondence analysis to explore how physical independence, mobility, social integration, and economic self-sufficiency provide the resources to sustain valued activities. Analysis of variance was used to identify the effect of cluster membership on the outcomes of life satisfaction and self-reported health.

Extending the health lifestyles approach to the study of disability reinforces the relationship between social participation, health lifestyle, and health. The results demonstrate that, 2 years after injury, people with spinal cord injuries construct health lifestyle patterns based on life chances and sustained through use of physical, social, and environmental resources. These lifestyles, shaped by enactment of particular social roles, result in different levels of self-rated health status and life satisfaction. In this study, the sociology of health lifestyles was shown to be a useful adjunct to more traditional methods of identifying the mechanisms through which persons with disabilities achieve different health outcomes.

DEDICATION

To Paul, my husband, who stood beside me in this dream and shared all its joy and pain.

For Ben and Frank and all the other persons who have lived with spinal cord injury and have become my teachers.

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I am grateful to the faculty and students in the Department of Sociology at The University of Alabama at Birmingham. I am a late-life convert to the joys of the sociological imagination. I have learned to love the diversity of sociology through each of you. I cannot imagine having better mentors or colleagues.

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LIST OF ABBREVIATIONS

CDC	Centers for Disease Control
CHART	Craig Handicap Assessment and Reporting Technique
FIM	Functional Independence Measure
HOMALS	Homogeneity analysis by means of least alternating squares
ICD	International Classification of Diseases
ICF	International Classification of Functioning, Disability and Health
ICIDH	International Classification of Impairment, Disability and Handicap
MSCISC	Model Spinal Cord Injury Systems of Care
NSCISC	National Spinal Cord Injury Statistical Center
SCI	Spinal cord injury
SWLS	Satisfaction with Life Scale
WHO	World Health Organization

CHAPTER 1

INTRODUCTION

Statement of Purpose

The purpose of this dissertation was to apply recent theoretical advances in the sociology of health lifestyles to the examination of styles of social participation adopted after traumatic spinal cord injury (SCI) (Abel, 1991; Cockerham, 2000b; Cockerham, Rütten, & Abel, 1997; Cockerham, Snead, & DeWaal, 2002; Palosuo, 2000; Siegrist, 2000). Health lifestyles are defined as "collective patterns of health-related behavior based on choices from options available to people according to their life chances" (Cockerham, 2000b, p. 160). Thus, the term health lifestyle encompasses more than exposure to health risk. It also includes all collective social practices in which the interplay of life choices and life chances create measurable differences in levels of health or disability.

The relationship between disease, disability, and handicap is a complex one (Gray & Hendershot, 2000; World Health Organization [WHO], 1980, 2001). Disability has been described as "an enigma that we experience but do not necessarily understand" (Albrecht, Seelman, & Bury, 2001, p. 1). People who are disabled experience an objective difference in body structures or functions; this difference affects the way that they carry out everyday activities (Verbrugge, 1990; WHO, 1980, 2001). However, not all people with disabilities experience the same degree of handicap. This is because the concept of handicap measures interaction with a larger social system (WHO, 1980). A person who experiences a particular degree of disability is handicapped in relation to the life options that remain and potential life choices that can be made. To be handicapped is to be differentially excluded from the structure of opportunity to participate in core social roles (Oliver, 1990; Siegrist, 2000). Thus, what sets people with handicaps apart from the non handicapped is not the disability per se but the experience of relative social disadvantage.

A health lifestyles perspective asserts that people who are disabled, as well as people who are healthy, exist within a social space that is created and maintained by lifestyle practices. Within the boundaries of this social space, lifestyle groups are distinguished from one another by how they are positioned relative to each other (Abel, 1991; Lüschen & Niemann, 1995). They are maintained in position by how effective they are in appropriating and using the resources necessary for them to maintain health (Bourdieu, 1984, 1998). The French sociologist, Pierre Bourdieu, described this social space as

> a multi-dimensional space of positions such that every actual position can be defined in terms of a multi-dimensional system of co-ordinates whose values correspond to the values of the pertinent variables.... Knowledge of the position occupied in space contains information as to the agents' intrinsic properties (their condition) and their relational properties (their position). (Bourdieu, 1985, pp. 724-725)

Thus, one goal of health lifestyles research is to identify the intrinsic properties that consign classes to specific positions (their condition) and to compare how each class fares in relation to each other (their position). This perspective can be adapted to study of disability because people who experience handicaps are differentially excluded from social participation not only as compared to society as a whole but also when compared to each other (WHO, 1980, 2001).

Cockerham (2000a) has identified health lifestyles as collective social practices that distinguish people into classes based on the options available to them. Thus, one aim of medical sociology must be to study the conditions and practices that create differentiated social space. When describing social distance, theorists of lifestyle have relied on spatial and temporal metaphors. Giddens (1991) labeled these differentiating modes of action *lifestyle sectors*, describing them as slices of repeated activities that cut across time and space (p. 83). Bourdieu (1985), on the other hand, understood them to be *theoretical spaces of difference* within a *space of relationships* (pp. 724-725). He depicted the space of lifestyle through the construction of multi dimensional maps showing positions of each class compared to others (Bourdieu, 1984, 1992, 1998).

The task of constructing a social space that models the conditions of handicap presents a major challenge to health lifestyles research. Ordinary space can be measured linearly. However, the social space of handicap must be constructed around the appreciation of *difference*. This requires measurement methods that are both multi-dimensional and relational (Bourdieu, 1984, 1992, 1998). Moreover, because the experience of disability is *lived* and *embodied*, attempts to model lifestyle must seek the closest correspondence possible to the everyday experiences of different classes (Bourdieu, 1984, 1985). This necessitates that the data to be analyzed be gathered from the actual situations in which people with disabilities construct their lifestyles (Gray & Hendershot, 2000).

The strength of the health lifestyle perspective is that it is empirically grounded in everyday practices, interactions, or routines that assign groups of similar individuals to positions within larger social structures (Brubaker, 1985; Cockerham, 2000a; Giddens, 1991; Siegrist, 1995; Weber, 1922/1946; Zablocki & Kanter, 1976). Therefore, it is natural to extend this perspective to research on disabilities. However, the health lifestyle perspective evolving in medical sociology does not have an exact counterpart in disability literature (Badura, 1984; Jenkins, 1991). Oliver (1990) asserted that this is because the perspective of disabled people is largely ignored by the dominant power structure. The mainstream discourse of disability relies, instead, on the term *life-world* to define every-day experience. This term has been borrowed from the language of phenomenological philosophy (Husserl, 1913/1967; Kelly, 2001; Schutz, 1932/1967).

Because phenomenology seeks to understand the way that individuals perceive the world and react to it, a phenomenological approach takes for granted the existence of an active agent. This idea of agency is best conveyed by Peters (1995), who described the experience of disability as that of a " person-in-altered body" living as a " person-in-altered world" (p. 140). The theme that this person is also part of a class of actors making real choices within the life-world, thereby structuring the social experience of disability in time and space, is seldom found in the disability literature.

One tenet of the health lifestyles approach is that routine health-related practices create separate classes of actors who occupy differentiated positions in social space (Abel, 1991; Cockerham, 2000b; Siegrist, 1995). This space, in turn, is bounded and maintained by recurrent practices of the actors themselves (Giddens, 1991). One useful way to conceptualize lifestyle, then, is as segmented social and symbolic space where people who share similar characteristics occupy contiguous positions, whereas people who are most different from each other appear most distant (Bourdieu, 1984, 1998). Constructing an adequate map of that space would entail mapping what groups of actors do, the resources they use, and the actions they take relative to each other.

Interest in the constitutive power of social practices has been central to sociology (Smelser, 1997). Many of the sociologists who have made significant contributions to the disability literature have focused their research on the importance of individual experience in the construction of a narrative sense of illness (Charmaz, 1991; Dyck, 1995; A.W.

Frank, 1995; Goffman, 1963; Murphy, 1990; Zola, 1982). Within this research tradition, the routines, habits, and practices that make up daily life are studied because they are held to be creators of individual identity (Davis, 1964; Goffman, 1963). Recently it has become evident that aggregate patterns of practice can be studied as socially constructed factors that lead to different health outcomes (Kelly, 2001; Putzke, Richards, Hicken, & DeVivo, 2002). If one assumes that there are many individual life-worlds embodied through the actions of people with disabilities, one must also assume that there are collective styles of action through which classes of persons with disabilities forge and sustain an identity in response to the social options which are open to them (Cockerham, 2000b; Giddens, 1991; Siegrist, 1995).

Joining the discourse of lifestyle and life-world requires a cross-cutting approach grounded in the knowledge that handicap is relational. Abel (1991) has already proposed that focus of such an approach would explore the relationship between health behavior of individuals and differences among groups. Because the people with disabilities are already an excluded minority, there is reason to question whether they experience the interplay of life choice and life chance differently than people who do not have disabilities. Are the elements that shape lifestyles different for persons with disabilities? If so, what establishes the conditions and positions of the social space that they occupy?

Research Questions

The aim of this study was to answer six questions about how lifestyle shapes the life-world after SCI: 1. Assuming that a health lifestyle approach can be adapted for use with persons with a specific type of injury, will patterns that suggest these lifestyles become evident 2 years after the onset of SCI? 2. If so, what characteristics related to life choice and life chance will differentiate the proposed lifestyles from each other? 3. Is there evidence to show whether life choice or life chance exerts a stronger influence on how people resume core social roles following SCI? 4. Do some lifestyles result in higher levels of life satisfaction and self-rated health? 5. Will using a social space approach to health lifestyles patterned on the work of Pierre Bourdieu be useful in confirming what is already known about the structure of disability? 6. Will a health lifestyles approach patterned on Bourdieu's concept of social space offer new insights to the understanding of disability?

Background

SCI can be a severely disabling condition with the potential to alter both the choices and chances for engagement in the previous life-world. Because it is the type of injury that most often occurs without warning, the person who experiences a SCI is seldom prepared for the changes in lifestyle that it brings about (Krause, 1992a)

The incidence of SCI in the United States has been estimated by the National Spinal Cord Injury Statistical Center (NSCISC) to be 40 cases per million population. About 11,000 new cases occur each year. The most common causes of permanent disability are automobile accidents (38.5%), violence (24.5%), falls (21.8%), and sports-related injuries (7.2%). Fifty-five percent of injuries occur in young adults under the age of 30. It is currently estimated that there are between 183,000 and 230,000 persons in the United States living with SCI (NCSISC, 2001).

Between the years of 1995 and 2000, the NSCISC collected data measuring outcomes for persons with SCI at the second anniversary of onset. Because of reduced Federal funding, second anniversary contacts were discontinued after September 2000. However, during this 6-year period, data on patterns of social participation, life satisfaction, and self-perceived health were routinely gathered during the second anniversary follow-up. During this time period, 2,585 second anniversary contacts were made; of these, 976 cases (37.8 %) contained data complete enough for inclusion in this study.

Cross-sectional second anniversary data obtained from the NSCISC were used in this study to generate four profiles of health lifestyle reflecting different patterns of social participation. Through cluster analysis, seven core social roles were reduced to four lifestyle profiles. The decision to cluster social roles had its theoretical roots in the health lifestyles perspective. Each role could be associated with Giddens' (1991) definition of lifestyle as a time-space slice of overall activity through which a person forms a specific identity.

The conditions that generated these lifestyles were then linked back to the lifeworld by comparing the life chances of the people in each lifestyle group. Life chances were defined by the traditional variables of age, gender, race, previous work history, level of education at onset, and marital status at the time of follow-up. Life chances related to etiology of injury and level of injury were also explored.

Next, the effect of life choice was explored. Life choices were defined by three personal and environmental factors—the level of physical independence, the level of mobility, and the extent of social integration. These three dimensions of life choices are recognized as shaping the overall pattern of social participation (WHO, 1980). The last step of the analysis was to examine each lifestyle in relation to levels of life satisfaction and self-reported health.

Implications

Life-world and lifestyle are complementary terms, each with the power to elucidate different dimensions of social organization. Lifestyle research undertaken by Cockerham and his cohorts has tended to focus on the relationship of lifestyle risks to social stratification and social structure (Abel, 1991; Cockerham, 2000a; Cockerham et al., 1997, 2002; Lüschen & Niemann, 1995). In contrast, life-world research in the disability literature has focused on the way that styles of personal interaction create community ties and foster group identity (Bickenbach, Chatterji, Badley, & Ustün, 1999; M. Bury, 2000; Kelly, 2001). Although the research agendas of these two approaches are different, they share an interest in the contribution made by recurrent and routine social practices to social organization and social position.

Another similarity between the life-world perspective and lifestyle perspective is their focus on shared stock of practical knowledge. People enact particular lifestyles as utilitarian practices (Bourdieu, 1990b; Cockerham, 2000b) they use their everyday knowledge to carry out both the level and type of social interaction that benefits them (Bourdieu, 1984, 1998; Charmaz, 1991; Schutz, 1932/1967). From the life-world perspective, disability occurs within the unfolding narrative of the knowing self (Charmaz, 1991; A. W. Frank, 1995). From the lifestyles perspective, conditions that promote disability are situated in real time and real space. It is within real time and real space that people embody different styles of action (Alonzo, 1985; Bourdieu, 1990b; Giddens, 1991). Moreover, these styles of action differentiate one class of actors from another. Thus, time, place, and action work together to create and sustain the sense of identity of individuals and of groups (Giddens, 1991).

The sudden experience of traumatic disability challenges a person's identity because it alters life-world in ways that disrupt existing health-related behavior (Kelly, 2001). In SCI, damage to the central nervous system changes both motor and sensory functions. Often, SCI challenges the way that people have carried out everyday occupations, forcing modification of former lifestyle habits and routines. Some of these lifestyle changes require a person to receive help from others to carry out personal care or provide valued services like transportation. However, as new routines are adopted, they form the basis of durable strategies to sustain healthy social participation. People act out these strategies using different approaches or styles; each style, in turn, structures access to the life-world that is constructed following injury. For this reason, the lifestyle accommodations made by persons in the first years following injury provide a natural laboratory for identifying the way in which different styles of practice may lead to different outcomes.

Surprisingly, there has been no systematic attempt as yet to link the insights gained from health lifestyles research to the large body of literature on long-term disability. Such an approach would seem a natural way to extend the health lifestyles perspective through application of its insight that lifestyle behavior, constructed by the interplay of choice and chance, contributes to different health outcomes.

Summary

There is need for a cross-cutting perspective within the large body of research on chronic illness and disability to link the culture of disability to specific health lifestyles. The first step toward the development of this research is depicting the social space of handicap so that the conditions associated with disablement become obvious. This is best accomplished by including within the map everyday habits and practices used by classes of persons with disabilities to structure the life-world after disability.

Within the first 2 years after experiencing SCI, people respond to the circumstances presented to them by an altered life-world. They encounter different options for social participation; they must assess their chances and choices for achieving satisfaction through a desired level of social participation (Cockerham, 2000b). Lifestyles theory recognizes that they are strategic in the actions they take to pursue social integration, life satisfaction, and health.

This study contributes to the literature of health lifestyles and disability in several important respects. It adopts a relational approach to disability, asserting that one is disabled not only when one is compared to society as a whole but also in comparison to other persons with similar physical impairments. Using cluster analysis, the study constructs a type of theoretical social space where different classes of disabled persons are clearly differentiated from each other based on their pattern of engagement in core social roles. Using homogeneity analysis, the study explores specific social resources those groups of players attract to themselves, identifying variables that are used to solidify their respective positions as distinct groups.

The study suggests a social typology of disability where distinctly different lifestyles are permitted to emerge from analysis of the behavior of the actors themselves (Bourdieu, 1985; Gray & Hendershot, 2000; WHO, 2001). It is important to model these class differences not only to extend the application of a lifestyle perspective, but also because it allows better understanding of the effect of choice and chance on rehabilitation outcomes experienced by the persons with SCI.

CHAPTER 2

REVIEW OF THE LITERATURE

The Centers for Disease Control (CDC, n.d.) reported that over 54 million Americans experience some chronic health condition that limits the way that they carry out every day activities. The basic definition of disability used by the U.S. Bureau of the Census (1997) described someone who

> has difficulty performing certain functions (seeing, hearing, talking, walking, climbing stairs, lifting and carrying), or has difficulty performing activities of daily living, or has difficulty with certain social roles (doing school work for children or working at a job or around the house for adults) (Census Brief, p. 1).

It is also estimated that 9 million people have disabilities so severe that they rely on the personal assistance of others to carry out activities of daily living. Nearly 80% of the time this personal care is provided by relatives (U.S. Bureau of the Census, 1997). Thus, disability affects not only the lifestyle of the person with a physical or mental impairment but also the habits and routines of persons who care for them.

The simplest definition of disability describes it as a limitation in functional competence (Whyte & Ingstad, 1995). However, attempts to find meaningful ways of classifying and measuring the effects of disability have met with complex conceptual problems. This is because disability is a social construction whose meaning and importance change over time (Albrecht et al., 2001; Braddock & Parish, 2001; McColl & Bickenbach, 1998). This chapter reviews the historical trends that have contributed to the understanding of disabilities in Western cultures and explores models for describing the effect of disability on lifestyle. It also reviews current research on SCI and describes the lifestyle challenges faced by persons with SCI during first years after injury.

Historical Contributions to the Social Construction of Disability

One of the most basic issues posed by disability research is the definition of disability. Disability is typically linked with words such as impairment, functional limitation, performance capability, or handicap (Albrecht et al., 2001; Verbrugge, 1990). These terms attempt to describe a relationship between bodies that are normatively different from the expectations of others and the social positions assigned to persons with different bodies (Institute of Medicine, 1991; Turner, 2001; Whyte & Ingstad, 1995). Although persons with physical and mental impairments have existed since the beginning of recorded history, ideas regarding the place of such people in society have always been shaped by historical trends, cultural needs, and social norms.

Biblical Constructions of Disability

Biblical sources provide some of the earliest perspectives on the relationship between physical impairment, disability, and cultural norms. People with limitations or deformities are portrayed in several different ways. In the Hebrew Scriptures, for example, illness was portrayed as a kind of social judgment resulting from God's wrath. An admonition found in Deuteronomy, 28:28-29 (Jewish Publication Society) warned "The Lord will strike you with madness, blindness and dismay. You shall grope at noon as a blind man gropes in the dark; you shall not prosper in your ventures, but shall be constantly abused and robbed, with none to give help." People with physical defects including blindness, lameness, and broken limbs were prohibited from offering sacrifices lest they profane God's altar (Leviticus 21:16-24). At the same time, people without disabilities were expected to care for those in special need. Job argued his innocence before God by pointing out that throughout his life he showed special concern toward the blind, the lame, the needy, and the stranger (Job 29: 14-16). One unifying theme throughout these sections of scripture is the belief that those afflicted with physical impairments have little power of their own. They are depicted either as the recipients of God's wrath or as the beneficiaries of righteous works done by their fellow humans.

The Christian scriptures contain many accounts of the healing of persons who were deaf, blind, lame, or possessed by evil spirits. There was also a relaxation of the rule that those with chronic illnesses were prevented from serving God. In fact, Saint Paul, one of the chief founders of Christianity, make explicit reference to his chronic infirmity, interpreting as proof the special grace that God had worked through him (2 Corinthians 12:7-11; New Revised Standard Version]. However, disability was not always accepted as a mark of favor; only some of those who were healed by Jesus or his disciples were invited to become followers. (Luke 8: 38-39).

Greco-Roman Constructions of Disability

The Greeks and Romans also had conflicting views regarding physical infirmity. Although some children with birth defects were left to die of exposure, the practice was apparently not universal (Braddock & Parrish, 2001). The story of Oedipus depicts the moral dilemma of one survivor. During Greco-Roman times, both medical and legal remedies to mitigate the effects of impairment are apparent. There is some evidence from historical records that prosthetic body parts were made for those who were injured in battle, allowing them a greater level of social participation (Bliquez, 1983). Braddock and

Parrish (2001) reported that in ancient Greece pensions were given to those who had been injured in battle according to the nature and severity of their injury. Roman law respected the property rights of people with disabilities. Evidence for this was shown in code of which Justinian classified persons with disabilities, granting different rights to each. Thus, during Greco-Roman times, the socially constructed view of disability shifted from one that had placed the disabled in a position of powerlessness toward a view that accepted differential limitation and consequent entitlement.

The Middle Ages and the Construction of Disability

During the Middle Ages, efforts to differentiate the effects of chronic diseases continued. However, in the popular mind, chronic illness was associated with demonic possession (Braddock & Parish, 2001). As the population of Europe grew and became more mobile, patterns of disease shifted, and disabilities resulting from infectious disease became more prevalent. Begging became an accepted practice for persons who were unable to work or support themselves in other ways (Henderson & Bryan, 1984). Thus, disability began to be linked to a social status that could legitimately draw on the financial resources of others.

Between the 11th and 16th centuries, religious orders established institutions that are precursors of today's residential health care system. Asylums, hospices, and hospitals provided places for people with disabilities to live and work. These institutions, despite their charitable intentions, segregated persons with serious physical impairments from the rest of society (Goffman,1961). With the breakdown of the feudal system and the beginnings of urban life, disability and poverty became even more closely allied. The Elizabethan Poor Law, enacted in England in the late 15th century, extended public support to the poor who because of disability were unable to care for themselves (Braddock & Parrish, 2001; Henderson & Bryan, 1984). Thus, the need to care for the disabled poor began to assume a moral dimension as a social concern. As people with disabilities became the objects of institutionalized care, they also began to experience social exclusion.

Moral Versus Medical Constructions of Disability

In the past three centuries, ideas about disability have been further modified by concepts arising from humanism and secularism. Gradually, this has resulted in the separation of medical and moral definitions of disability (M. Bury, 2000). With the emergence of biomedicine based on a scientific paradigm, disability came to be defined chiefly as a consequence of aging or chronic disease (Bickenbach et al., 1999; Bury, 2000; Institute of Medicine, 1991). This perspective on disability associated it with biologically based limitations enacted within the larger arena of social concerns (Turner, 2001). Medical experts have underscored this perspective by portraying disability as the interaction between physical or mental impairments expressed in social and environmental dimensions (Institute of Medicine, 1991).

An opposing perspective was offered by those who believe the root cause of disability is lack of social acceptance and understanding (Oliver, 1990). From this perspective, people with disabilities are an oppressed group whose opportunities for full inclusion can only be changed by social activism (M. Bury, 2000; Oliver, 1990). This view has roots in 19th-century ideas of moral treatment, and in the 20th-century experience of the civil rights struggle (Braddock & Parrish, 2001). It challenged the idea that the factors contributing to handicap can be influenced by the intervention of biomedicine. Proponents of this viewpoint prefer the term disablement to disability because they believe it more adequately acknowledges the role that culture plays in shaping options for social participation (Oliver, 1990; Verbrugge & Jette, 1994).

Disability as a Universal Concept

Recently, trends in the disability literature have suggested the possibility of a synthesis of opposoing viewpoints through adoption of a universal perspective (Bickenbach et al., 1999). The philosophical foundation of this approach is the United Nations' Universal Declaration of Human Rights, published in 1948. It's goal was to develop a universal policy that includes codes and standards reflective of a wide range of empirically grounded differences in human performance. This perspective rejects the notion endorsed by biomedicine that the experience of the disabled must be normalized. Instead, it looks toward a post medical era where universal social inclusion, regardless of difference, is valued as a basic human right (WHO, Health Education Unit, 1986).

Although capability and disability are part of the universal human experience, there has been a wide range of variation in the social construction of their meanings. At different times in history, embodied physical and mental differences have been viewed both as marks of God's wrath or marks of special favor. People with disabilities have often been viewed as a special class of people requiring special care; their history has included periods of separation as well as periods of inclusion. Most recently, biomedicine has begun to espouse the view that everyone is at risk for disability and that the conditions that lead to disability can be changed (Institute of Medicine, 1991).

The concept that the entire population encounters some degree of "disablement" constructed by culture leads naturally to the question of lifestyle differences. Lifestyle has been defined as "a range of socially determined patterns of behavior and interpretations of social situations, developed and used jointly by a group to cope with life" (WHO, Health Education Unit, 1986, p. 118). It has also been defined as "collective patterns of health-related behavior based on choices available to people according to their life chances" (Cockerham, 2000b, p. 160). Together, these two definitions generate several questions that can be measured empirically. What are these patterns? What influences people with similar medical diagnoses to adopt different patterns of social participation? Do these patterns help them cope?

Models and Classification Schemes in Disability Research

Over the years, sociologists have made major contributions to many of the models for understanding disability. Three of these models, the chronic illness model, the social or sociopolitical model, and the universal inclusion model, are relevant to the study of SCI. Each of these models addresses specific needs and has become associated with its own agenda for change (Altman, 2001; Bickenbach, 1993).

The Chronic Illness Model

M. Bury (2000) identified three attributes of chronic illness that link it to variable levels of disability. First, the degree of chronic illness depends on the availability and success of medical interventions. Medical interventions taken to extend life can result in increased prevalence of disability. Second, unlike a disease where outcomes can be measured by morbidity and mortality, chronic illnesses have long-term consequences. People who experience chronic illness make sequential lifestyle changes in response to changing symptoms. Finally, chronic illness seldom results in a single predictable outcome; rather, there are many possible outcomes.

Chronic Illness as Deviance

Parsons' definition of the sick role has shaped the American understanding of the relationship between illness and disability (Parsons, 1951). Parsons believed that social order is maintained when a group of people acts in accordance with the actions and expectations of others. Parsons also believed that definitions applied by medical practitioners held the key to defining the functional relationship between the ill individual and the social environment.

Central ideas derived from Parson's theory about the sick role have been instrumental in shaping the modern understanding of disability as a type of deviance. Disability, like sickness, is an undesirable state that a person should try to avoid. It is undesirable not only because it imposes a form of suffering, but also because it prevents a person from engaging in expected work roles (Kelly, 2001).

One of the chief differences between the disabled and the non disabled is that the disabled have reduced participation in paid employment. This is a prominent theme in the disability literature (Kelly, 2001; National Organization on Disability, 1998). The centrality of work to identity is emphasized by several sociologists (see Charmaz, 1991; Davis, 1964; A. W. Frank, 1995; Goffman,1963; Zola, 1991). Not surprisingly, response to chronic illness and disability described through illness narratives is often presented as a moral career, a term which links it to work the disabled person is expected to do (Kelly, 2001).

Parsons (1951) also equated the sick role with the relinquishment of valued roles, especially the work role. Defining disability-related behaviors in this way is supported by the use of statistics based on percentages of performance. Such operational definitions emphasize the ways disabled persons differ from the able-bodied. For example, the

National Organization on Disability (1998) reported that 30 % of adults with disabilities work full time or part time. This compares to 80% of adults without disabilities. If disabled and non disabled groups are compared similar trends are found in percentages registered to vote (62% compared to 78%), the percentage reporting inadequate access to transportation (30% compared to 17%) and the percentage who have difficulty in accessing medical care (21% compared to 11%). These reported differences between the disabled and people without disabilities support the perception that the status of people with disabilities is similar to the status of those who are sick.

From a Parsonian perspective, chronic illness is the same as functional deviance; its effects are felt both at the individual and social levels (Parsons, 1951). Kelly (2001) observed that classifying disabled persons as deviant individuals places them outside the normal social structure. When disability is defined as deviance, it facilitates a research agenda whose goal is to discover the causes of dysfunction. The concept that disability involves social stratification created by the normal operation of choice and chance finds little support within the Parsonian paradigm (Kelly, 2001). Not surprisingly, medical rehabilitation continues to pursue a research agenda focused on describing the experience of disability in terms of reduced levels of function, reinforcing the view that chronic illness is a deviant lifestyle that can be changed by interventions from experts.

Measuring Limitations That Result From Chronic Illness

In the chronic illness model, limitations in performance or function are used to explain group differences in health and health-related behavior (Lindbladh et al., 1996). Until recently, two competing schemes for understanding disability have framed the agenda in disability research. One is the International Classification of Impairments, Disabilities and Handicaps (ICIDH) developed by the WHO; the other is the Nagi model of disability developed in the United States (Institute of Medicine, 1991).

The International Classification of Impairments, Disabilities, and Handicaps. In 1980, WHO published the ICIDH to model the effect of biological or physiological limitations on subsequent social performance. The taxonomy was designed to augment the existing International Classification of Diseases (ICD) first published in 1893. Publication of the ICIDH was prompted by WHO's adoption of its definition of health as " a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1948, p. 100). In order to link the two documents together, the ICIDH offered three supplemental concepts—impairment, disability, and handicap (see Figure 1).

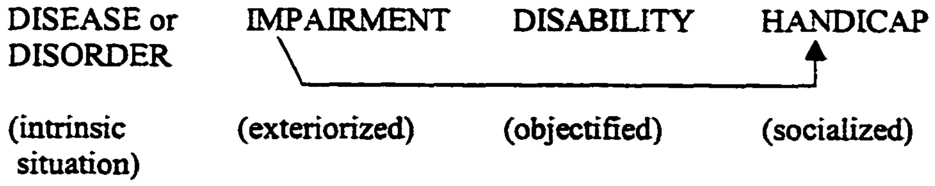

Figure 1. Schematic representation of the concepts in the International Classification of Impairments, Disabilities, and Handicaps.

Note. From the *International Classification of Impairments, Disabilities, and Handicaps,* (p. 30), by the World Health Organization, 1980, Geneva, Switzerland: World Health Organization. Copyright 1980 by the World Health Organization. Reprinted with the permission.

Diseases and disorders were recognized entities defined by the ICD. Impairments, identified as the result of disease, were characterized by a loss or abnormality of body structure or function. Examples of impairments might include weak vision, loss of a limb, or restriction of movement due to pain. The third concept, disability, objectified how impairment affected the performance of activities that would normally be expected of a person. For example, a person with paralysis of the legs after SCI might not be able to walk, which is an activity normally expected of human adults. The fourth concept, handicap described a social disadvantage that accrued as a result of disability. For example, a person who has lost the use of both arms and legs as a result of SCI might be unable to sustain economic self-sufficiency (WHO, 1980).

The National Center for Health Statistics collects data annually through the National Health Interview Survey. Core questions on perceived health status and limitations of activity are included. An alternate method for measuring national levels of disability involves quantifying the impact of disability on work roles and on the receipt of disability benefits. Data on the number of days missed from work are collected jointly by the Bureau of Labor Statistics and the U.S. Bureau of the Census in the monthly Current Population Survey and by the U.S. Bureau of the Census through the Survey of Income and Program Participation. Through these efforts population-based estimates of the impact of disability on work-force participation are obtained (Institute of Medicine, 1991).

The Nagi model of disability. Saad Nagi, a sociologist working with the Institutes of Medicine, proposed an alternate pathway for studying the effect of chronic illness on performance (Nagi, 1991). This model also suggested four concepts but defined them differently from the ICIDH. The first concept was active pathology or interruption of normal body processes. The model differed from the ICIDH because it assumed that pathology could be present even when the condition is not recognized as a disease entity. The second concept was impairment (as it is in the WHO model). However, at the third conceptual level, Nagi introduced the term *functional limitation.* A functional limitation is measured by decreased capability to perform activities. This change marks an important difference between the two models. The Nagi model simply measures whether a person can do an activity, whereas the ICIDH model had introduced a normative dimension by comparing performance to that which would be normally expected. The fourth concept of the Nagi model, disability, is the final outcome of the process. In Nagi's model, no attempt was made to operationalize the concept of handicap as social disadvantage (Verbrugge & Jette, 1994).

Research agendas derived from the Nagi scheme have tended to be directed toward measurement of functional limitation on performance. Some information on functional limitations is gathered through the Survey of Income and Program Participation. Chiefly, the focus is on limitations and restrictions in activities of daily living— grooming, feeding, dressing, and bathing—and on instrumental activities of daily living— telephoning, shopping, money management, and home maintenance. People with serious health problems experience limitations in functional activities regardless of the etiology of illness (M. Bury, 2000; Verbrugge, 1990). Statistics based on functional limitation are useful in projecting the potential cost of disability.

Models that explore the structural links between chronic illness, physical function, and daily behavior are useful in predicting levels of disability. However, such models are limited by their reliance on biologically based causes and their failure to take into account the social and political dimensions that shape the disability experience. M. Bury (2000) stated that

> disability is clearly relational in the sense that much depends on social circumstance and social interactional issues, as well as individual or biomedical characteristics….Disability occupies a meeting point between the direct effects of chronic illness and impairment and the social contexts (micro and macro) in which people live" (p. 179).

Because of this, he cautioned that it is unwise to interpret disability statistics without reference to the social and political location of the disabled within the structure of social power.

The Sociopolitical Model

The chronic illness model of disability begins with identification and classification of biological definitions and then proceeds to social consequences. In contrast, the sociopolitical model begins by defining disability from an insider's perspective as a social consequence of discrimination against people with mental and physical differences (Oliver, 1996). The sociopolitical perspective rejects Parsonian functionalism, emphasizing in its place, human agency and political activism (M. Bury, 2000). Not surprisingly, people with disabilities contribute heavily to the discourse of this model (Eiesland, 1994; Mairs, 1996; Oliver, 1990; Zola, 1982, 1993).

Social Disability

Oliver (1990, 1996) situated social model discourse on disability within a conflict perspective. The medicalization of disability, which is a perspective that locates the source of the problem of disability within the human body, gives only secondary importance to environment and culture. In opposition, the sociopolitical model holds the problem or disability is a problem imposed by culture. The disabled comprise an important subculture whose contributions to social and political discourse have been largely ignored (M. Bury, 2000; Oliver, 1990; Turner, 2001).

Minority Status

In 1990, endorsing the rights of all people to participate in society, regardless of physical or mental limitation, the United States Congress enacted the Americans With Disabilities Act of 1990. This legislation described people with disabilities as

> a discrete and insular minority who have been faced with restrictions and limitations, subjected to a history of purposeful unequal treatment, and relegated to a position of political powerlessness in our society based on characteristics that are beyond the control of such individuals and resulting in stereotypic assumptions which are not truly indicative of individual ability of such individuals to participate in, and contribute to, society. (42 U.S.C. 12102 (a) (7))

Identification of the disabled as a minority group was the first step to recognizing the need for accommodation, that is, the need to shape both the physical and social environments so that they might become accessible to people with disabilities. The goal of accommodation is to facilitate interactions between disabled and non disabled people so that all might achieve full social inclusion.

Environmental Access, Life Chance, and Alienation

The most problematic environment for persons whose lives are shaped by impairments is the world of everyday action. This environment has multiple dimensions and includes tangible objects, geography, social networks, and resources, as well as laws, governmental policies, and stereotypical attitudes (McColl & Bickenbach, 1998).

Kelly (2001), drawing on the work of Schutz (1932/1967), divided this everyday life-world into different zones of relevance. The most proximate zone of relevance is defined by the person's physical connection with the parts of the life-world that can be controlled. Impairment differentiates opportunities for controlling the parts of the life-world that require manipulation by the body. Human beings use this daily connection with the world to build a sense of living in the world. When the nature of these connections is changed, a person begins to perceive the self as powerless to interact with the larger community. Thus, differences in opportunities for interaction can lead to a sense of alienation and, ultimately, to exploitation and social oppression (Kelly).

Oppression and Lifestyle

It is the experience of political and social oppression that Oliver (1990) identified as the source of disablement. As one of the chief advocates for self-determination by the disabled, Oliver (1990, 1996) contended that the medicalization of disability is a pervasive form of social control. He argueed further that the use of medically derived vocabulary to define disability paints an artificial picture of the lifestyles of persons with disability, creating the illusion that there are two separate classes of individuals—the disabled and the others who care for them. Health professionals benefit from serving this dependent class of persons, gaining financial remuneration, prestige, and power. Therefore, physical and social aspects of disability work in tandem to create a self-reinforcing cycle of oppression.

The sociopolitical model presents the disabled as an identifiable class of individuals whose discourse has been silenced by misunderstanding and stereotyping (Eiesland, 1994; Mairs, 1996; Zola, 1993). Its proponents have argued that only self-initiated activism aimed at changing public policy will alter the unequal status that the disabled are accorded (Oliver, 1990). Advocates of this perspective have challenged the disabled to become more visible and active in public life (Eiesland, 1994). However laudable these strategies are, the sociopolitical perspective has been criticized as lacking the theories and tools necessary to carry out a consistent program of empirical research (Bickenbach et al., 1999). Although it does deal with issues of class and power, the model lacks the comprehensiveness needed to link disability and health lifestyle.

The Universal Inclusion Model

Zola (1991) argued for the formulation of political strategies that recognize that disability is a condition for which humans are universally at risk. The central aim of universal policies would be to situate disability itself within the range of normal variations in human experience (Bickenbach et al., 1999).

Model Development

Since the publication of the ICIDH in 1980, WHO has been criticized for its failure to provide a useful framework for assessing the biological, psychological, and social dimensions of disability (M. R. Bury, 1987; Gray & Hendershot, 2000; Wood, 1987). The attempt to depict a multi dimensional construct in a hierarchical and linear fashion has been called unnecessarily complex (Badley, 1987, 1995; Halbertsma, 1995). Critics argued that the concepts offered—particularly disability and handicap—lacked both conceptual clarity and empirical grounding (Bickenbach et al., 1999). It was also reported that when the ICIDH survey was used in its full form, it was found to be unwieldy (M. R. Bury, 1987). Moreover, the negative view of disability as a non normative state provoked the ire of the disabled (Oliver, 1990). Finally, the linking of handicap to social disadvantage failed to account for the value content of the perspective from which such a judgment was made (Badley, 1987; Oliver, 1990, 1996; Wood, 1987)

The developers of the ICIDH argued in its defense that it was intended to be used primarily as a sensitizing scheme, not a linear model where cause leads inevitably to effect (Badley, 1995; Wood, 1987). It was never intended as a way to count persons—whether as patients or clients (Wood, 1987). Rather, the ICIDH attempted to depict universal dimensions of human experience that might or might not be a part of the illness experience of individuals or groups.

In 1993, researchers in Holland, France, North America, and the Nordic countries began the process of revising the ICIDH. The final revision (originally called ICIDH-2 and later The International Classification of Functioning, Disability and Health [ICF]) was officially approved in May 2001 (see Figure 2). The revised language of the ICF shifted the focus from identifying disability as the consequences of disease to describing social participation as a component of health. The underlying model offered universal inclusion of all human experience by using words whose meaning was neutral rather than normative (Bickenbach et al., 1999).

The ICF model was framed around six concepts instead of four. These concepts are health condition, body structures and functions, activities, participation, environment, and personal factors. The interaction of these concepts forms a multi dimensional array that includes information both from the intrinsic features of the individual and extrinsic influences from the physical and social environments.

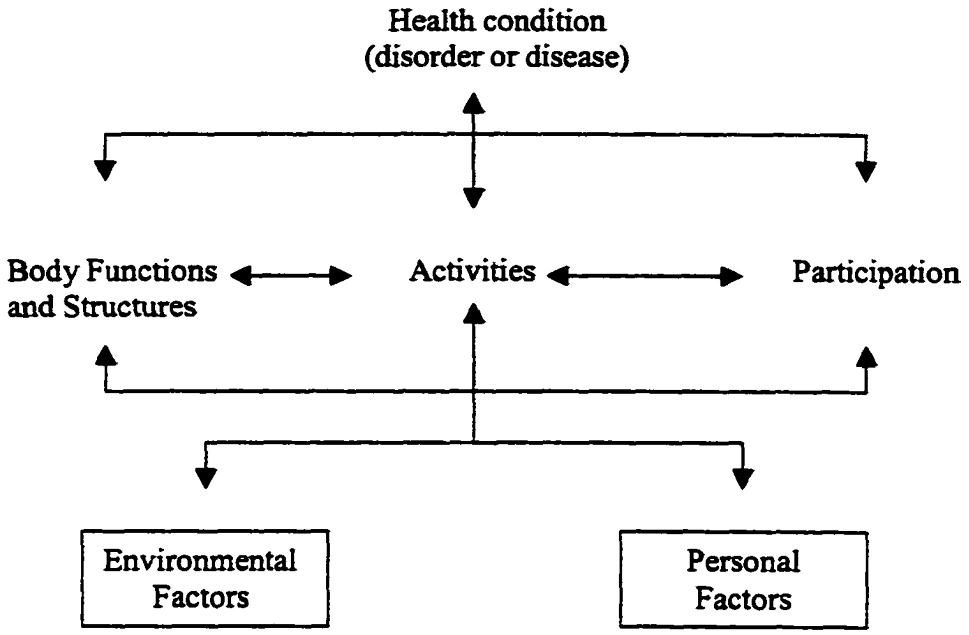

Figure 2. Schematic representation of the concepts in the International Classification of Functioning, Disability and Health.

Note. From the *International Classification of Functioning, Disability and Health* (p. 18), by the World Health Organization, 2001, Geneva Switzerland: World Health Organization. Retrieved October 26, 2001 from the World Health Organization, from http:// www.who.int/classification/icf/intros/ICF-Eng-Intro.pdf. Reprinted with permission.

The ICF manual states that

> as a classification system, the ICF does not model the "process" of functioning and disability. It can be used, however, to describe the process by providing the means to map the different constructs and domains....In this sense, the ICF can be seen as a language: the texts that can be created with it depend on the users, their creativity and their scientific orientation. (WHO, 2001, p.18)

A more salient feature of the ICF, however, is its focus on health as a situation set within an array of possible alternatives. According to the ICF manual, "the ICF does not classify people, but describes the situation of each person within an array of health or health-related domains" (WHO, 2001, p. 8). Health is generated and sustained within a space that has both physical and social boundaries. This shift in emphasis provides an important link between the language used in ICF and concepts in the existing health lifestyles literature.

Disability and Health Lifestyle

From the perspective of the medical model, disability is a personal matter managed by adjustments and behavioral changes to normalize behavior (see Formal, Cawley, & Stiens, 1997). From the perspective of the sociopolitical model, disability is a structural matter managed by collective social action. The tension between these two perspectives recapitulates the opposition of structure and agency found in health lifestyles literature (see Bourdieu, 1990b; Cockerham, 2000b; Giddens, 1991).

The ICF intentionally seeks to integrate the perspectives of the medical and sociopolitical models (WHO, 2001). It does this by offering a spatial perspective that is recursive and multi-dimensional. The ICF models a space of action, using as the focal point the very activities that create lifestyle. It offers a way to examine the factors that influence the daily living habits of people with chronic physical or mental conditions. These habits are patterns of behavioral choice, modified by personal and environmental factors, and made according to the options offered by particular life situations. Thus, these habit patterns are, in fact, lifestyles. Recurrent patterns of lifestyle practice are able to differentiate among persons and groups. Thus, the ICF offers a language to describe disability that is finally compatible with the discourse of health lifestyles research.

SCI

Injuries to the spinal cord that result in permanent loss of neurological function occur in the United States at an annual rate of 40 cases per million population (NSCISC, 2001). SCI occurs most often to people in the prime of life. It happens largely from preventable causes such as automobile accidents, violence, sports injuries and falls.

Life Chances of Sustaining an SCI

The interplay between choice and chance is relevant to the epidemiology of SCI. It is an injury that occurs disproportionately (81.6%) to males (NSCISC, 2001). Fifty-five percent are injured between the ages of 16 and 30 years. The average age at time of injury for all persons with SCI was 32.1 years. The average age at onset for persons injured after 1990 is 35.3 years. Statistics gathered since 1990 identify the ethnic composition of persons treated through the Model Spinal Cord Injury Systems of Care (MSCISC) as 59.1% Caucasian, 27.6% African American, and 7.7% Hispanic (NSCISC, 2001). More than half (53.4%) were unmarried at the time of injury. Although the majority of the persons with SCI (59%) have at least a high school education, the educational level is generally lower than the general population. Twelve percent have educational levels of 8 years or less (Go, DeVivo, & Richards, 1995). Each of these statistics suggests that exposure to risk of SCI may be influenced by life chance factors associated with gender, age, ethnicity, level of education, and marital status.

Physical and Functional Aspects of Injury

Physical and functional changes that result from SCI occur both as the immediate result of injury and as aspects of long-term adjustment to the altered life-world. The goal of medical rehabilitation is to restore and maintain capability to perform the activities necessary to carrying out daily life roles (Granger, 1998).

Immediate Consequences of Injury

SCI is a neurological condition that alters sensory function and voluntary motor control. The accepted way of classifying acute injury to the spinal cord is by the spinal level at which it occurs and whether severance is complete or incomplete (Ditunno, Young, Donovan, & Creasey, 1994). A complete or incomplete injury to the cervical spine resulting in motor and sensory loss that affects the neck, arms, trunk, and legs is called tetraplegia (if complete) or tetraparesis (if incomplete). Complete or incomplete injury below the cervical level, resulting in motor and sensory loss to the trunk and legs, is called paraplegia (if complete) or paraparesis (if incomplete). Other medical problems associated with SCI can include loss of respiratory and genitourinary function as well as pressure ulcers on the skin. Related traumatic injuries associated with SCI can include head injuries, fractures, burns, injuries to peripheral nerves, and amputations (Go et al., 1995). However, it has been demonstrated in repeated studies that the level and type of injury is a poor predictor of quality of life after SCI (DeVivo & Richards, 1992; Putzke et al., 2002; Richards et al., 1999).

Adjustment Following Injury

There is no single perspective from which to assess adjustment following SCI. Common indicators of adjustment include several measures of physical and psychosocial functions (G. G. Whiteneck, 1997). Physical adjustment can be assessed by the level of functional independence with which the person carries out daily living activities (Granger, 1985, 1998; Mahoney & Barthel, 1965). Psychosocial adjustment is often gauged by measures of subjective well-being and life satisfaction (Fuhrer, 1994; Krause, 1992b; Richards et al., 1999). It can also be measured by the vocational status attained

(Dijkers, Abela, Gans, & Gordon, 1995; Krause, 1992a; Krause et al., 1999; G. G. Whiteneck, 1997).

Physical and functional adjustment. One major goal of rehabilitation is to promote independence in daily living tasks. Granger (1998) suggested that, just as people experience quality of life, they also experience quality of daily living. He defined this quality as "the ever-changing balance between one's choices, options, and expectations versus the physical, cognitive and emotional demands of daily living" (p. 236).

Physical aspects of adjustment to disability are often measured by the degree of functional independence regained (Saboe, Darrah, Pain, & Guthrie, 1997). Derived from concepts contained in Maslow's research on motivation, functional independence is conceptualized as the balance between life skills and life demands (Granger, 1998). The focus of functional independence is on the interface between severity of impairment and an objective measure of disability (Ottenbacher, Hsu, Granger, & Fiedler, 1996).

The Functional Independence Measure (FIM), a well-researched instrument for assessing the effect of impairment on daily life functions, uses 18 impairment categories divided into the separate domains of self-care activities, sphincter control, transfer of the body, locomotion, communication, and social cognition (Ottenbacher et al., 1996). Through factor analysis, it has been confirmed that people with tetraplegia and tetraparesis have difficulty with eating, grooming, bathing, dressing the upper body, and manipulating a wheelchair. People with paraplegia or paraparesis have difficulty in dressing the lower body, using the toilet, regulating bowel and bladder function, transferring from a wheelchair to a bed, toilet or tub, and climbing stairs (Stineman, Jette, Fiedler, & Granger, 1997).

Scores on the FIM assigned at the initial hospital admission have been shown to predict the level of independence, the need for personal care assistance, and wheelchair ownership 2 years after injury (Saboe et al., 1997). However, changes in functional independence measured by the FIM are most likely to change prior to the second year after discharge (B. E. Becker & DeLisa, 1999). After that time, the expected outcomes of rehabilitation shift from increased functional improvement to increased levels of social participation (G. G. Whiteneck, 1997).

The relationship between level of function and the resulting level of handicap is far from clear-cut. Because reintegration into a community depends on the interaction of personal, physical, and social attributes, it is only indirectly related to the level of function (DeVivo & Richards, 1992; Dijkers, 1999; G. G. Whiteneck, 1997). Richards et al. (1999) found that physical function measured by the FIM predicted access to the external environment; access to the environment, in turn, was associated with more positive life satisfaction. Putzke et al. (2002) found that, controlling for the level of life satisfaction 1 year after injury, FIM scores of motor function were not a significant predictor of adjustment as measured by life satisfaction 2 years after SCI.

Psychosocial adjustment. Several different theories have been used to explain psychosocial adjustment after injury. Physical skills alone do not predict successful adjustment to the altered life-world, nor do they predict successful community reintegration (Dijkers, 1999; Hammell, 1992). Stage theory has been used to define the normalizing process through which the consequences of injury are gradually accepted (Hammel, 1992; Stiens, Bergman, & Formal, 1997). Because the experience of reactive grief was initially believed to be an important aspect of adjustment, early attempts to frame stage theory used the patient's active cooperation with treatment as an indicator of positive adjustment (Albrecht & Higgins, 1977; Bracken & Shepard, 1980). Consistent with Parsons' view of sickness, healthy adaptation was defined as taking an active role in one's own recovery (Henderson & Bryan, 1984).

It is now recognized that adaptation is a life-long process in which the first years set the stage for the ones that follow. Trieschmann (1980) depicted the onset of injury as:

> somewhat similar to a rock or a boulder becoming lodged in a stream bed. There will be a disruption to the flow of life for a while, but life goes on and the person continues to evolve in ways consistent with pre-injury influences. (p. 208)

Trieschmann believed that people do not fully learn to use new mobility and self-care skills until 18 to 20 months after the onset of injury. When they do, they draw on pre-injury characteristics. Some of the characteristics she identified were having a warm family background, being financially secure, having an internal locus of control, the ability to use creative problem solving, interpersonal support and the ability to set life goals (Trieschmann, 1980). Except for the caveat that one has financial security, Trieschmann's work avoided mention of life chances such as gender, level of education or previous work history even though these might also affect the course of adjustment.

The severity of injury does not appear to be associated strongly with adjustment to SCI. Rather, Glass, Jackson, Dutton, Charlifue, and Orritt (1997) reported a large degree of heterogeneity in the way that people respond to injury. Other recent findings about adjustment have identified being younger at onset, being female, having developed social skills, employment, access to transportation, demonstrating assertiveness, having problem-solving ability, and having financial security as predictors of successful adaptation to injury (Stiens et al., 1997). Internal locus of control, or the belief that one can act as an agent who exercises a high degree of personal control over health, has also been associated with better adaptation (R. G. Frank & Elliott, 1989; Mazulla, 1984).

Not surprisingly, those who take a sociopolitical perspective on disability strongly oppose research in which psychological or interpersonal characteristics are used to explain adaptation. Oliver (1990) faulted psychological theories because the claim to speak with authority, but this claim is not derived from the experience of disabled people themselves. He argued further that the financial and material circumstances affecting social participation of people with SCI, particularly when there is a need for special housing, employment assistance, or financial assistance, offer more significant barriers to adjustment than psychological factors do.

Vocational and occupational adjustment. Rates of employment after SCI have always been difficult to estimate with any degree of accuracy (Krause et al., 1999). Studying 286 persons who had been injured on average for over 18 years, Krause (1992a) found that 48% were currently working, and 75% had worked at some point after injury. He reported a positive correlation between higher levels of education and employment.

However, paid employment is only one type of work. Other types of work that are culturally accepted include housework, volunteer work, and schoolwork. The terminology of the ICIDH calls these unremunerated productive roles "occupation" and defines them by "the individual's ability to occupy his time in the manner customary to his sex, age and culture" (p. 195). In accordance with this broader definition of productivity, Krause et al. (1999) have suggested that it is desirable to consider a range of activities associated with successful adjustment. Based on data gathered by the Craig Handicap Assessment and Reporting Technique (CHART), they found that 28.4% of persons surveyed through the MSCISC engaged in paid employment, whereas 13.1% were in school, 16.5% were engaged in volunteer work, and 64.4% identified themselves as performing homemaking tasks.

Community reintegration. In the terminology provided by the ICIDH, a person is handicapped to the degree that he or she is prevented from conforming to expected social norms (WHO, 1980). G. Whiteneck, Tate, and Charlifue (1999) suggested that the overall pattern of community reintegration suggests the degree of adjustment. Reviewing data from 3,835 cases from the MSCISC, they found wide variation between persons with SCI across the dimensions of physical independence, mobility, occupation, social integration, and economic self-sufficiency. Their study found that factors that had previously been associated with adjustment—level of injury, age, years since injury, gender, ethnicity, and level of education—explain 29% of the variance in physical independence and mobility, 28% of the variance in occupational engagement, and 18% of the variance in economic self-sufficiency but only 9% of the variance in social integration (G. Whiteneck et al., 1999). These findings clearly suggest that people use a variety of lifestyle strategies to sustain social participation. An additional implication is that people balance the effects of life chances imposed by age, gender, and education by offsetting them with life choices that result in enhanced social integration. This concept of balancing choice and chance in order to achieve health outcomes is central to the definition of health lifestyle (Cockerham, 2000a).

Adjustment and Lifestyle After Injury

The word lifestyle was not introduced into the English language until the early 20th century (*Oxford English Dictionary*, 1997). As first used by Alfred Adler in 1929, it referred to the innate character and behavior formed as a result of life experience. Almost immediately, however, the word began to be applied more generally, not only to behaviors governed by psychological motives but also to collective ways of acting and associating—ways which differentiated people into recognizable groups (Coreil, Levin, & Jaco, 1985). From the beginning, the use of a single word for events that are both endogenous to and exogenous to the individual has led to some confusion (Badura, 1984; M. H. Becker, 1993; Coreil et al., 1985; Lindbladh et al., 1996). With the recent contributions of sociologists to the health lifestyles debate, however, a more unified concept of lifestyle has begun to emerge (Bourdieu, 1998; Cockerham, 2000a, 2000b; Giddens, 1991; Giddens & Pierson, 1998).

Cockerham et al. (2002), drawing from the work of Weber (1922/1946) argued that choice and chance act in a dialectical fashion to create lifestyles. Life choices include all aspects over which the individual can exert agency or control. Choice is particularly evident in the time one spends doing particular activities, the space in which they are performed, and the people with whom one associates as one performs (Giddens, 1991). Chances, on the other hand, are the structural constraints within which the person must necessarily act. Age, gender, ethnicity, and level of education are examples of variables that differentiate life chances. Thus, both structure and agency work in tandem to create health lifestyles in response to the options available to each individual (Cockerham, 2000b; Cockerham et al., 2002).

Insider/Outsider Perspective and Lifestyle

Throughout the disability literature, a parallel dialectical argument has existed although a different pair of opposing concepts is used. These two concepts—called the insider perspective and the outsider perspective—have shaped much of the disability debate. Traditionally, the sociopolitical model has followed the insider perspective, arguing that it is within the experience of being disabled that one defines the nature of disability. The perspective of the insider must necessarily be that of an embodied person (Turner, 2001). The insider is a conscious agent who acts on his or her own behalf. Further, the viewpoint of the insider can only be known to the person or persons who experience the changed conditions of action within which the daily round of activities occurs (Peters, 1995).

In contrast, the medical model of disability has adopted the outsider perspective, giving primacy to structure. Changes in body structure and function cause disability. From this perspective, life choices related to disability are determined by body structures or social structures and remain largely outside of the person's immediate control. Agency is only effective when a person acts within the internal constraints imposed by the body and the external constraints imposed by cultural norms.

Lifestyles as Social Aspects of Time, Space, and Habit

In an interview with Pierson (Giddens & Pierson, 1998), Giddens described lifestyle practices as patterns of activities that take place over time. He pointed out the importance of these practices to the formation of society, proposing that:

> "Society" can be understood as a complex of recurrent practices which form institutions. These practices depend on the habits and forms of life which individuals adopt. Individuals don't just "use" these in activity, but these life practices constitute what activity is. (p. 77)

In post modern society, a lifestyle is not passively adopted; instead, it is constructed within space and over time (Giddens, 1991). Thus health lifestyles that lead to different health outcomes can be conceptualized as practices and habits occurring within space and across time.

The recognition that health outcomes relate to patterns observed in temporal practice (Abel, 1991) has renewed interest in the durable patterns of action that occur within and across time. People devote time to particular activities that, in turn, bring them into contact with or separate them from others (Giddens, 1991). Lifestyle habits are durable patterns of responding to particular situations within time and space (Alonzo, 1985; Bourdieu, 1984; Giddens, 1991). More importantly, habits are formed by both agency and structure. Although agency is necessary to create lifestyle, the structural aspects of lifestyle are inscribed on the body both as histories of past actions and principles for improvised action (Bourdieu, 1984, 1990b).

Lifestyle Challenges Following Injury

Peters (1995) suggested that the experience of disability is that of an altered person in an altered world. In order to make sense of this world, people make choices about how to pursue a lifestyle that is meaningful to them (M. Bury, 2000). Stiens, himself a paraplegic, described adaptation to disability as spanning multiple layers of the self, stating that "expression of the self through the body requires new positions, gestures and motions" (Stiens et al., 1997, p. S-68). Over time, these new positions and postures become incorporated into habitual practice.

While experiencing changes to the body, each person also reframes ideas of health that he or she incorporates into these new experiences. As an empowered insider, the person begins to live out a particular lifestyle. In short, people with SCI, just like their non disabled counterparts, have no choice but to define a lifestyle through which they live out their identity (Giddens, 1991).

Lifestyle strategies. After sustaining an SCI, people generate usable strategies to create and preserve a desired pattern and level of social competence. Giddens (1991) offered an important link between these strategies and lifestyles:

> A lifestyle involves a cluster of habits and orientations, and hence a certain unity—important to a sense of ontological security—that connects options in a more or less ordered pattern. The selection and creation of lifestyles is influenced by group pressures and the visibility of role models, as well as by socioeconomic circumstances. (p. 82)

Within potentially enabling or disabling social environments, people who have experienced an SCI enact particular lifestyles based on what they perceive to be attainable levels of physical activity, mobility, occupation, and social integration. These patterns are, in fact, health lifestyles with the goal of minimizing disablement. For example, an important constituent of health lifestyle for a person who is dependent on a wheelchair for mobility may include attainment of fitness through recreational activity or adherence to dietary guidelines for weight control. Similarly, decisions about the pattern and frequency of engagement in core social roles such as employment and parenting influence health by reinforcing feelings of self-esteem and belonging (Siegrist, 2000).

Lifestyle differentiation. Despite wording in the Americans With Disabilities Act of 1990 that implies that all people with disabilities constitute a single class, the SCI literature supports the existence of marked differences in respect to physical limitations, functional abilities, and social participation. The search for patterns to explain such social differentiation is the central objective of health lifestyles research (Badura, 1984; Cockerham, 2000b).

Summary

A review of the literature defining the nature of disability and, particularly, the experience of SCI supports two assumptions. First, disability is constructed by the interactions of people within cultural environments. Second, people with disabilities have a role in constructing the lifestyles through which they consume health. Although there is a large body of literature describing both medical and sociopolitical aspects of disability, Abel (1991) identified the need for cross-cutting studies that could link disability and health lifestyles research. Furthermore, the ongoing sociological debate regarding the importance of structure and agency parallels the debate over insider and outsider perspectives found within the literature of disability. Both debates invite research into the influence of choice and chance on the health-related practices of individuals and groups.

When the WHO approved the ICF as its conceptual framework, it affirmed that health is sustained by the interaction between activity and social participation (WHO, 2001). In other words, it encouraged research that makes health visible as styles of action. Furthermore, by moving away from stigmatizing words like "disability" and "handicap" WHO shifted the discourse on disability from measurement of social disadvantage and toward the identification of enabling factors that promote health. The observation that these enabling factors do not occur at random, but as clusters of related practices is one of the important insights of health lifestyles research (Abel, 1991; Cockerham, 2000b; Cockerham et al., 1997, 2002).

Within the first 2 years after SCI, people respond to their life circumstances, assessing both their options and their chances for desired levels of social participation (Trieschmann, 1980). The sociology of health lifestyles would suggest that they are strategic actors who actively balance both their choices and their chances for finding satisfaction from the options that are open to them (Cockerham, 2000b). As they do this, they define through their own actions the nature of disability and participation as differentiated styles of practice.

The focus of this study was to examine how the actual practices of people with SCI, particularly the ways they coordinate their health-related habits and routines during this early period, differentiate them into distinct lifestyle groups. These practices are derived from the need to construct lifestyles that balance physical independence, mobility, occupation (defined in accordance with the WHO concept as productive use of time), and social integration. It is assumed that the lifestyle practices adopted by different groups will be associated with different health outcomes.

CHAPTER 3

THEORETICAL FRAMEWORK

This chapter proposes a theoretical link between disability and health lifestyle by (a) offering a definition of health lifestyle that is congruent with disability literature, (b) exploring how the work of Pierre Bourdieu assists in the conceptualization of lifestyle as a type of social space held in place by recurrent practice (*habitus*), and (c) proposing a mechanism through which health lifestyles affect the quality of life experienced after SCI.

Defining Lifestyles Within the Paradigm of Disability

Linking health lifestyles research to the more traditional view of health behavior begins with exploring the relationship between health behavior and health lifestyle.

Health Behavior and Health Lifestyle

Cockerham (2000b) established an important link between health behavior and health lifestyle. Health behavior includes all activity performed with the purpose of sustaining or enhancing health and sustaining identity. Thus, health behavior includes any effort on the part of an individual to feel good, to look good, or to improve or maintain health. However, health behaviors, once they have been developed, become imbedded within particular structures. This statement is true because there is a regularity and formality to recurring behaviors that allow them to become self-perpetuating or habitual. Thus, a perspective looks beyond the particular behaviors of separate individuals and explores pat terns of group behavior as the source of differentiation among classes of individuals.

Disability and Lifestyle

There can be no distinction between a disability lifestyle and a health lifestyle. Instead, there is a range of possible health lifestyles adopted by persons who have experienced altered levels of physical or mental function. Functional limitations often necessitate adaptation of daily life activities related to physical independence, mobility, occupation (or productive use of time), social integration, and economic self-sufficiency (Hall, Dijkers, Whiteneck, Brooks, & Krause, 1998). These factors also influence the lifestyles of persons with disabilities.

Cockerham (2000b) suggested that people do not usually invent new lifestyles; instead, they learn to use an existing lifestyle as their own. This is true also for people with disabilities who often look to others as role models for what it means to live a particular lifestyle (Zola, 1982, 1991). Goffman (1963) depicted the learning of these behaviors as taking part in a "normal-deviant drama" (p. 133) because it engages individuals with disabilities in decisions about which roles to play and when to play them. Lifestyles are consistent sets of practices to support the enactment of these roles.

Lifestyles are integrated sets of practices that the individual embraces not simply because they are utilitarian but because they give a sense of identity (Giddens, 1991). However, the preoccupation of medical rehabilitation to "success" and "outcomes" reinforces the view that some lifestyles are more desirable or acceptable than others (Albrecht & Higgins, 1977; G. G. Whiteneck, 1997). Patients who do not adopt behaviors approved by medical staff are often labeled non compliant and judged to need further medical services (Albrecht & Higgins, 1977; Stiens et al., 1997). However, from Giddens' (1991) perspective, one must of necessity choose a lifestyle, even when one's behaviors are disapproved by another group. All lifestyles are unavoidable patterns of collective choice imbedded within a structure of social expectation and opportunity.

A Proposed Definition of Lifestyle

Drawing from the language of health lifestyles (Cockerham et al., 2002), the following definition is offered: The health lifestyles of persons who have sustained disabling conditions are collective patterns of health-related behavior aimed at minimizing disability and maximizing social participation. Lifestyles represent choices from options available to people according to their life chances.

The Sociological Perspective of Pierre Bourdieu

The work of Pierre Bourdieu (1930-2001) has had a pronounced influence on the development of 20th French sociological thought. His innovative and eclectic approach to sociology combined perspectives from cultural anthropology, critical theory, phenomenology, and post structuralism (Swartz, 1997). Bourdieu has been described as a sociologist who invites critique and reflection and one who is "enormously good to think with" (Jenkins, 1992, p. 11).

Strengths of Bourdieu's Sociological Perspective

One of Bourdieu's chief insights is that different classes or people exist within distinct boundaries of social space. He conceived this space not in terms of physical boundaries but in a space of difference, where groups of persons occupy particular positions (Bourdieu,1984). These positions are created by two factors: first, the type and amount of capital that persons possess, and further by the kinds of active strategies that people follow in order to use, conserve, and transform that capital. Bourdieu agreed with Giddens that the space of lifestyle separates people into different classes of actors. He also concurred that social space is sustained by habituated practices (Swartz, 2002). In other words, he believed that what groups of people do matters because it creates and sustains class differences.

Exploring the World of Difference

Bourdieu believed that the aim of sociology should be to create a "social topology" (1985, p. 723). By this he meant that sociologists should be willing to explore a world of *differences*. He envisioned this space as a multi dimensional field of struggle held in place by action, opportunity, and choice (Bourdieu, 1977, 1984, 1985, 1992). He also believed that to draw an accurate picture of social processes one must define the boundaries of a unitary space in which to identify the position of one group of actors in relation to another group or other groups within it. To quote Bourdieu's own words, "the real is the relational" (1998, p. 3).

An example might help to draw an explicit parallel between Bourdieu's theory and the experience of disability. WHO (1980) defined handicap as a type of disadvantage one experiences compared to normative expectations of one's own culture. After experiencing SCI, some people are able to resume driving a car, thus ensuring their mobility. Others are not able to resume driving. Therefore, the ability to drive a car becomes an important type of capital. The presence or absence of this capital distinguishes two groups of people—those who can move about relatively independently and those who are relatively dependent. What is important is not that the two groups different each from the other in an absolute sense but that they are different in relation to each other, differentiated by their access to that particular type of capital and their capacity to use it strategically as a part of lifestyle.

Mapping the World of Difference

Bourdieu believed that an accurate map of social space could be constructed only through intensive study of the actual practices of different classes of people. Mapping of this kind is a recursive endeavor because both the boundaries of the total field and the positions of persons within the field are held in tension by the actions of the incumbents themselves (Bourdieu, 1984, 1990a). Referring to the example of driving in the previous section, if people who were able to drive made the choice not to drive, then there would be essentially no difference between those who could drive and those who could not. Therefore, driving would no longer be an important diffentiating factor among classes.

Bourdieu's preference for mapping social space as a space of differences forced him to question the rules that govern one's position in this multi dimensional space of action. Again, applying this concept to disability, not everyone with an SCI is disabled in the same way or to the same extent. There are, without a doubt, different ways of experiencing disability and different lifestyles. The aim, therefore, must be to construct a map that includes all of a particular group of people. This, in turn, would identify the invisible rules that separate them into classes.

Bourdieu's Potential Contribution to Disability Research

Bourdieu's concept of social space as a place of class differentiation offers a kind of shorthand to describe a complex idea. This idea, in a nutshell, is that social outcomes are formed and held in place by an invisible fabric of social practice; these practices determine the boundaries of action (the field) and the relative positions of classes of actors within that field. His theoretical stance offers several important insights to the disability literature. First, it provides a way to deal with the long-standing debate within the disability literature about the relative importance of the insider perspective (practices) and the outsider perspective (structural influences). Second, it recognizes that people with disabilities are strategic players who act in their own behalf. As a result of their actions, they contribute to social and individual definitions of disability. Third, Bourdieu's work supports the view that disability is always relational. One is disabled relative to another individual, or another group, or in relation to the expectations derived from the culture in which one lives. Fourth, it offers a way to conceptualize the resources used by the disabled—physical assistance, mobility, environmental access, social ties—as types of capital used strategically to create different conditions of daily existence. These different conditions correspond to different lifestyles. Bourdieu challenges the researcher to think about social space in equivalent terms to geographical space as an approach to measuring the effect of handicap.

Bourdieu's Preference for Correspondence Analysis

Bourdieu's preferred methodology for research consisted of constructing large matrices of data to recreate an entire field of action. Within this field, classes of actors occupy positions relative to all other actors (Bourdieu, 1985; Clausen, 1998). People who are similar in their actions or status appear in close proximity to each other. Those who are most different are portrayed as being further away from each other (Clausen, 1998; Greenacre, 1993). A preference for a wide field of action led Bourdieu to choose correspondence analysis as the appropriate statistical method to represent social space. He described his choice of the method thus:

> the analysis of correspondence makes it possible to isolate, through successive divisions, different coherent sets of preferences stemming from distinct and distinctive systems of dispositions, defined as much by their interrelationship as by the relationship between each of them and its social conditions of production. (1984, p. 261).
>
> Due to the correspondence established between the space of positions occupied in social space and the space of dispositions (or habitus) of the occupants and also, through the mediation of the latter, the space of position-takings, the model functions as an adequate principle of classification. (1998, p. 15)

Bourdieu believed that the positions of classes made visible through correspondence analysis were, in fact, homologous to the relative social position of each class. He wrote:

> social science should construct not classes, but rather the social spaces in which classes can be demarcated, but which only exist on paper. In each case it should *construct and discover* (beyond the opposition between constructionism and realism) the principle of differentiation which permits one to reengender theoretically the empirically observed social space....This principle is none other than the structure of the distribution of the forms of power or the kinds of capital which are effective in the social universe under consideration (1998, p. 32).

Bourdieu used correspondence analysis to define and describe conditions of power and the strategies people employ to secure or maintain that power. This issue of strategic use of power is particularly relevant to the sociopolitical perspective of disability that holds that people with disabilities are relegated to social positions of relative powerlessness (Oliver, 1990, 1996).

Bourdieu relied almost exclusively on correspondence analysis to substantiate three key constructs that are inherent to his theory of the genesis of social groups. These constructs are the logic of practice, habituated conduct (habitus) and the field of action or the field of power (Bourdieu, 1984, 1988, 1990b, 1992, 1998). Each of these three terms is briefly defined below, and the application of each construct to the concept of disability is summarized.

The Logic of Practice

The earliest statements of Bourdieu's theory of action hypothesized a link between embodied experience of living in the everyday world and social differentiation (Bourdieu, 1977, 1984, 1985). This hypothesis finds a parallel in the disability literature in the importance of the insider perspective in defining the person's own experience of the world.

Bourdieu's perspective. From the outset, Bourdieu rejected the idea that class differences result from the rational choice or unconscious motivation of actors. In his *Outline of a Theory of Practice* (1977), he began to posit the existence of what he termed "a logic of practice" based on commonsense knowledge of the everyday world. He argued that, although practice creates its own logic based in the embodied experience of the actor, it is also generalized into an attribute that differentiates among classes (1984). In other words, "knowing how to do something" evolves into "doing something routinely."

In his more recent writings, Bourdieu often described this phenomenon as an innate "sense of the game" (1990b, 1992). Experience, itself the product of action over time and within space, creates a structuring style to govern what is right and fitting to a particular situation. Although the logic of practice is neither biological nor social, it is inscribed in the body and is expressed objectively in what people actually do. What they do solidifies class position of one group in relation to another.

Application to disability. Hypothesizing that there is an innate logic that is expressed through the embodied experiences of people with disabilities creates an important link between lifestyle and social practice. Zola (1991) reminded medical sociologists that what happens to and with body is more than metaphor; rather, it offers the basis for understanding all dimensions of human experience. It finds a parallel in Bourdieu's observation that "What is 'learned by the body' is not something that one has, like knowledge that can be brandished, but something that one is" (Bourdieu, 1990, p. 73). This knowledge of what one is and how one is to act shapes the context for social participation.

However, to live as an embodied actor responding to an innate logic is by no means an isolated project (Turner, 2001). Rather, it assumes participation with other actors and with other classes of actors. This participation creates and refines the very social space within which one acts. The inevitable conclusion is that the disabled themselves take part in constructing lifestyles and through their lifestyles they refine social definitions of disability.

Habituated Conduct (habitus)

The most familiar of Bourdieu's contributions to sociological theory is his belief in the structuring nature of habitual conduct. This concept of habitus is central to an understanding of his work.

Bourdieu's theory. Bourdieu (1998) believed that one's position within social space is the product of individual and collective history. He offered the concept of habitus to explain the observable fact that actors behave in predictable ways (1977, 1990b, 1998). Habitus is defined as " a generative and unifying principle which retranslates the intrinsic and relational characteristics of a position into a unitary lifestyle, that is a unitary set of choices of persons, goods and practices" (1998, p. 8). Through habitus various opportunities for social participation are objectified as embodied practice. Each type of habitus shows a characteristic unity of style that differentiates it from the style used by other classes of actors.

Returning to the driving example used in the previous section, not being able to drive a car is associated with the habitus of certain classes of people living with SCI. Having the identity of a non driver limits access to space and thereby structures the world in which one lives. Consequently, whether or not one drives contributes to the way one weaves the effects of disability into a coherent style of being, in other words, into a lifestyle.

The operation of habitus does not require rational choice either by individuals or classes. Neither does it require that people in the same class associate with each other. The concept of habitus asserts instead that groups that are situated within similar spaces of social action will adopt similar actions and practices to bring about desired ends. Thus, according to Bourdieu, it is habitus that creates and perpetuates class distinctions (1984).

To explain how people come to share a common habitus, Bourdieu assumed that they share a similar sense of the stakes of the game and the goals that are attainable based on the structure of opportunity (Bourdieu, 1990). He described this as an innate way of anticipating the future similar to that experienced by a player during the course of a game (1998). This statement establishes the link between habitus and lifestyle since both rely on a sense of the future that comes from assessing the options created by life choices and life chances (Cockerham, 2000a; Cockerham et al., 2002)

Application to disability. The Americans With Disabilities Act of 1990 assumes that the disabled can be identified as a distinct minority group. However, this is far from true. People with disabilities have different expectations for as and options for social participation; they may use a variety of strategies to satisfy those options. These strategies can be explained in part by the internalized dispositions of habitus. The person with a disability does not learn entirely different ways of being; instead, he or she gradually rediscovers and recovers a lifestyle that is possible (Stiens et al., 1997).

Although life after SCI may be experienced as an entirely new game, the internalized dispositions of actors soon shape the boundaries of possible lifestyles. For one group of people, full-time employment may offer an attainable lifestyle. For another group, full-time parenting or homemaking may offer a more desirable lifestyle option.

Habitus , therefore, contributes to a lifestyle of social participation in two ways. First, it offers to different classes of persons a range of lifestyle options based on choice and chance. At the same time, the different types of habitus used by different classes of actors shape public opinion about what should be expected of persons with disabilities, thereby influencing both individual and collective history.

The Field of Action

The social action generated by habitus occurs within a structured cultural context, which Bourdieu identified as the field of action and the field of power (1992, 1998). The field is both created and held in place by differences among actors and groups of actors.

Bourdieu's theory. In his early work Bourdieu (1977, 1984) elaborated the concept of habitus as a generative principle of action. In his later work he gradually shifted his research agenda toward exploring the relationship between habitus and fields of action (Bourdieu, 1992, 1998; Swartz, 1997). Bourdieu's Marxist leanings are most evident in his concept of the field. He broke with Marx, however, by asserting that all types of capital—cultural, social, material, and symbolic—are used as resources to establish one's position within the field (Swartz, 1997).

A field can be any field of endeavor where different classes struggle for recognition and legitimacy (Bourdieu, 1984, 1998). It can be an academic field in which the stakes are prestige. Alternatively, it can be a field in which one competes for scarce resources, like the social space experienced by persons with different types of mental illness (Bourdieu, 1988; Clausen, 1998). The field is merely a space of differentiation within which groups position themselves. Bourdieu's primary concern was with the strategies or dispositions individuals use to maintain or advance the position they hold in the field (Swartz, 1997). He was also interested in identifying the variables that create the widest differences between groups (Bourdieu, 1992).

The field creates a link between the practice-bounded lifestyles of groups and the genesis of larger social structures. Lifestyles were important to Bourdieu, not because one lifestyle is intrinsically more worthwhile than another but because all lifestyles represent ways of accessing and using power. Further, some lifestyles are valued as being more legitimate (Bourdieu, 1984, 1998).

Application to disability. The disabled person exists within a field of power in which he or she must establish his or her own legitimacy. The medical profession exerts the power to offer goods and services based on the legitimated goals of rehabilitation (Albrecht & Higgins, 1977; Turner, 1995). However, often persons with disabilities are required to "play the game" offered by medicine where the stakes are set by an assumed potential for rehabilitation success (Oliver, 1990). A medically oriented view of disability often ignores the fact that groups of persons with disabilities respond to their own sense of the game. Whatever they may have lost, the disabled retain the inherent power to establish lifestyles that respond to internal dispositions and external circumstances. Moreover, they maintain a sense of how and how much they want to play the game (Goffman, 1963; Peters, 1995; Zola, 1991). Bourdieu's concept of fields of power and action can shift the discourse surrounding disability away from the identification of limitation toward the identification of strategic resources that support the habitus of social participation.

Modeling the Space of Lifestyle and Quality of Life After SCI

After a traumatic event such as SCI, one's needs are resource intensive. One may need to rely on physical help from others to perform daily activities (G. G. Whiteneck , Charlifue, Gerhart, Overholser, & Richardson, 1992). One may need to modify one's methods for maintaining access to transportation and physical space (Richards et al., 1999). Habits and routines must be adjusted to allow the person adequate time to perform valued tasks and to access a space of performance (Charmaz, 1991; Murphy, 1990). Trieschmann (1980) found that many of the patterns that support increased participation become evident in the 2 years following injury.

The analysis that follows employs Bourdieu's method of constructing a spatial diagram to illustrate the effect of these lifestyle differences. It intentionally depicts the lifestyles of persons after SCI to highlight sources of differentiation between them (Bourdieu, 1984). The field of lifestyles was constructed from data gathered by the NSCISC through interviews of people on the second anniversary of injury. Cluster analysis identified four different response profiles. Each response profile showed a distinctive pattern of engagement in seven productive activities—work, homemaking, volunteer work, home maintenance, schoolwork, recreation, and self-improvement.

These four lifestyle groups were then depicted through homogeneity analysis, also called multiple correspondence analysis, as positions within a space of differentiation. The lifestyle of Group 1 combined homemaking, home maintenance, self-improvement, and recreation. The lifestyle of Group 2 was devoted to school, homemaking, volunteer work, recreation, and self-improvement. The lifestyle of Group 3 was devoted almost entirely to recreation and self-improvement. The lifestyle of Group 4 combined paid employment, with homemaking, home maintenance volunteer work, recreation, and self-improvement. It is hypothesized that each of these styles constructs a different experience of disability and that the pertinent aspects of that experience can be identified using Bourdieu's approach.

Summary

Habits are more than individual responses to life conditions; they represent instead shared identities, aspirations, and status expectations (Swartz, 2002). Implicit in the approach that Bourdieu offered is the assumption that everyday practice and social participation must exist in relationship to each other. This viewpoint is consistent with the concepts and model adopted by WHO in the ICF. The ICF situates activity at the core, reinforcing its importance to the experience of social participation (see Figure 2).

When viewed as a unitary group, people living with SCI may appear to occupy a marginal position in society. As disabled people, they exist in a world where their power and legitimacy are questioned (Oliver, 1990). Nevertheless, persons with disabilities have no choice but to construct lifestyles (Giddens, 1991). These lifestyles are constructed in response to the options offered by life chances and life choices (Cockerham, 2000b). Therefore, a spatial mapping approach that depicts the salient characteristics of the life-world as a single field of action may uncover the rules that create the differences between lifestyles. It may also reveal the associated strategies and resources that allow groups to achieve different lifestyles and different outcomes.

CHAPTER 4

RESEARCH METHODS

Data Source

The NSCISC maintains records on an estimated 13% of all new cases of SCI in the United States each year. Between 1995 and 2000, 18 Model Systems Centers submitted initial and follow-up data on patients twice yearly. In June 2000, the database contained information on more than 19,648 cases (NSCISC, 2001). Any person with an SCI whose rehabilitation occurred at a Model Systems Center was eligible for follow-up by the system. Follow-up routinely includes measures of health status, the level of handicap, satisfaction with life, and self-perceived health.

Study Design

The study used a cross-sectional design to explore health lifestyles, life satisfaction, and health-related quality of life 2 years after onset of SCI. Most people experience SCI as a traumatic event from which some recovery is possible over time (Trieschmann, 1980). Although the extent of functional recovery depends on medical, social, and psychological variables, it has been reported that functional and demographic factors account for only 9% of the variance in social participation (G. Whiteneck et al., 1999). Previous research supports the assumption that it can take 1 or 2 years for a person to even begin to master the skills necessary to resume former roles (Krause et al., 1999; Trieschmann, 1980). It has also been found that persons with SCI injured 2 years or less show significantly greater handicap in mobility, occupation, and physical independence than those who have been injured longer (G. Whiteneck et al., 1999). Thus, the second anniversary of the onset of disability is a time during which considerable variation in health lifestyle should still be evident. The intent of this study is to identify within a unitary field of action the lifestyle positions of persons whose injuries are a relatively recent experience and to explore the resources of physical independence, mobility, and social integration related to those positions.

Instrumentation for Follow-Up

The second anniversary protocol incorporated data from three standardized instruments—the CHART, the Satisfaction with Life Scale (SWLS), and self-reported health status.

The CHART

After November 1995, scheduled follow-up in the Model Systems centers included the CHART, which is a 27-item interview to evaluate how well a person with SCI carries out productive social roles (G. Whiteneck et al., 1992; G. G. Whiteneck, 1997). The CHART is a survey instrument designed to provide weighted measures of handicap according to the model of the ICIDH (Dittmar & Gresham, 1998). The definition of productive roles on the CHART parallels the definitions of ICIDH; these roles are paid employment, school, home making, home maintenance, volunteer work, recreation, and self improvement (WHO, 1980).

The ICIDH defines handicap by discrete circumstances that place individuals or groups at a disadvantage in relation to both their culture and their peers (WHO, 1980).

These disadvantages may include restriction from engaging in one or more life roles. For example, a person may be prevented from attending school because of the lack of ability to enter or exit the house independently. A persons with a hearing disability may be restricted from engaging in certain types of employment unless qualified interpreters are available.

Measures of Activity on the CHART

The CHART reports life roles as types of occupation (Table 1). The authors provide simple definitions for each area of occupation (G. G. Whiteneck et al., 1992). Using these definitions, the respondent estimates the number of hours per week he or she spends doing each of the seven occupations.

Table 1

Definitions of Occupational Variables on the CHART

Occupation	Definition
Work	Hours per week working in a job for pay
School	Hours per week spent in school working toward a certificate or an academic degree
Homemaking	Hours per week spent in homemaking activities such as parenting, housekeeping, and food preparation
Home maintenance	Hours per week spent in yard work, house repairs or improvements to the home
Volunteer work	Hours per week spent in ongoing volunteer work
Recreation	Hours per week spent in recreational activities such as exercise, sports, playing cards, or going to the movies (excludes watching television or listening to the radio)
Self-improvement	Hours per week spent in activities such as hobbies or leisure reading (excludes watching television or listening to the radio)

Psychometric Properties of the CHART

The CHART may be administered in person or over the telephone. Five dimensions are identified—physical independence (3 items), mobility (9 items), occupation/time use (7 items), social integration (6 items), and economic self-sufficiency (2 items). Test-retest reliability of these items ranges between .95 and .81 with an overall reliability coefficient of .93 (G. G. Whiteneck et al., 1992). Reliability coefficients for proxy family members resulted in adequate reliability (.84-.69) in all dimensions except for the degree of social integration (.28).

However, a recent study of the use of proxy respondents in a sample of persons with SCI reported that particular items on the CHART are less likely to be estimated reliably by a proxy respondent (Cusick, Brooks, & Whiteneck, 2001). These items include the number of hours spent in recreation per week (interclass correlation, .10), the number of hours spent in home maintenance (interclass correlation, .19), and the number of hours spent in self-improvement (.44). On the social integration scale, estimates of the number of relatives contacted each month, the number of business associates contacted each month, the number of strangers contacted each month, and the number of friends contacted each month were only moderately correlated. Finally, there was little correlation (.12) in the estimates of household income given by proxies when compared to the person with the disability. The authors conclude that proxies are most likely to give reliable estimates of lifestyle practices that they can observe.

One advantage of using the CHART to assess health lifestyles is that it measures activities that constitute the actual practice of the individual rather than his or her estimate of degree of handicap (Nieuwenhuijsen, 1995). This is not true of measures of functional independence like the FIM, which is an instrument that relies on scoring by professional experts to determine the patient's level of function (Granger, 1985, 1998; Ottenbacher et al., 1996). However, even though the overall reliability of the CHART in measuring community integration after SCI is high (.84), proxies do not appear to give reliable estimates for some items that measure occupation, social integration, and economic self-sufficiency.

Use of Individual CHART Items

Hall et al. (1998) also cautioned against using summed CHART scores that combine responses across all five dimensions. Arguing that handicap is a multi dimensional construct with independent dimensions, they recommended separate analysis of data from each of the five subscales of the CHART. These subscales are physical independence, mobility, occupation, social integration, and economic sufficiency.

The design of this study adhered to their recommendation in several respects. First, it analyzed responses to individual CHART items rather than using summed scores. Second, a single dimension of the CHART (occupation) was used to form the lifestyle cluster groups. Lifestyle was then reintroduced as a categorical variable in correspondence analyses. Finally, the associations between each cluster and three or four variables associated with the remaining CHART dimensions—physical independence, mobility, and social integration—were evaluated sequentially Throughout, analysis of each dimension of the CHART was considered separately.

The SWLS

The SWLS is a five-item measure that provides a cognitive judgment of well-being (Diener, Emmons, Larsen, & Griffin, 1985). Items are measured on a 7-point scale from 1 (*strongly disagree)* to 7 (*strongly agree).* The score for life satisfaction is obtained by asking a person to compare current life circumstances to an ideal standard that he or she defines (Diener et al., 1985). The SWLS has been shown to have good convergent validity with standard measures of life satisfaction and morale (Pavot, Diener, Colvin, & Sandvick, 1991). Reported mean scores for the SWLS have ranged between 23.5 and 25.8 (of a possible 35 points). Richards et al. (1999) reported that mobility and access to the environment after SCI predict scores on the SWLS.

Self-Rated Health

This assessment of health-related quality of life requires people to rate their health on a 5-point scale from *excellent* to *poor*. This rating was developed as a part of the short form of the Medical Outcomes Study questionnaire (SF-36) and was validated by Ware and Sherbourne (1992). This global measure represents both physical and functional aspects of health. Reports of excellent or good health have been found to be predictive of lower morbidity and reduced risk of mortality (Idler, 1994; Idler & Benyamini, 1997).

Selection of the Sample

Collection of second anniversary follow-up information by the NSCISC was discontinued in September 2000. At that time, data from contacts at Anniversary Years 1, 2, 5, 10, 15, 20, and 25 were available on 6,141 cases. Of these, 2,585 (42%) were second anniversary contacts. The decision in the current study to analyze only second anniversary contacts had two advantages. First, it eliminated the possibility of duplication from persons who received follow-up contacts in both Year 1 and Year 2. Further, it had the advantage of representing a complete set of contacts to which there can be no further additions.

Inclusion Criteria

To minimize the effect of missing data, three additional criteria for inclusion were applied. All respondents were 16 years of age or older at the time of injury. Each case had contained scores from all 27 items on the CHART, all 5 items on the SWLS, and self-rated health. Because of the aforementioned problems with the reliability of proxy respondents, only cases where the person was the actual respondent were selected. When these restrictions were applied, 976 cases met the selection criteria. This number represents 16% of all follow-up contacts in the data set and 37.8% of all second anniversary contacts.

Evaluation of Selection Bias

Previous studies using the NSCISC database have shown that bias is introduced by inconsistent follow-up methods and missing data. Hall et al. (1998) estimated that over half of the cases followed up had some missing CHART data. The resulting bias favored a respondent who is more likely to be Caucasian, is older at time of injury, and has a higher level of education. The developers of the CHART have cautioned that inferring population-based estimates based on the NSCISC data may well overestimate the level of social participation of persons after injury (Hall et al., 1998).

Before the analysis was begun, two methods were used to identify the effect of selection bias. Bias was initially assessed by comparing the demographic and neurological characteristics of the sample to national estimates. Then, demographic measures on the cases selected for study ($N = 976$) were compared to the excluded second anniversary cases ($N = 1{,}609$).

Analytic Methods

The study has combined several analytic techniques. First, cluster analysis was used to subdivide the sample into clusters, each representing a particular health lifestyle. A four-cluster solution was examined, and its internal and external validity was established. Next, cross-tabulation was performed and the Pearson chi-square statistic was used to identify the variables that contributed to the greatest degree of difference among the cluster groups. Next, significant chi-square differences were analyzed by correspondence analysis. This allowed the construction of a spatial map showing the position of each cluster and its association to life chances and life choices. The software used in this analysis was SPSS Categories, Version 8.0.

As the final step in analysis, one-way ANOVA explored the global effect of cluster membership on life satisfaction and self-reported health. Results confirmed the external validity of the four cluster groups by demonstrating the effect on quality of life.

Cluster Analysis

Cluster analysis is used to explore the underlying structure of complex behaviors (Aldenderfer & Blashfield, 1984; Lüschen & Niemann, 1995; Romesburg, 1984). The study methods included establishing theoretical grounding for the choice of grouping variables, selection of the *k*-means clustering method as the appropriate method of analysis, and establishing the internal and external validity of a four-cluster solution.

Abel (1991) used cluster analysis to identify homogeneous lifestyle groups in separate samples from the United States and West Germany. His findings provide support for use of the *k*-means clustering method to form coherent lifestyle groups whose existence can be verified empirically. In a similar study, Lüschen and Niemann (1995) used hierarchical cluster analysis to study communities of practice in regard to health habits (e.g., exercise, diet, drug use, vitamins, smoking, and alcohol). The authors of both studies recommended cluster analysis as a useful technique for examining the structure of multi-faceted health behaviors. They also supported the use of clustering techniques as a useful adjunct to more traditional ways of studying health outcomes (Abel; Lüschen & Niemann).

Theoretical Grounding

Aldenderfer and Blashfield (1984) underscored the importance of forming clusters with similarities or dissimilarities that can be supported by theory. In this study, the ICIDH was the model for formation of the health lifestyle clusters on the basis of the activities reported by the respondents. A central concept of the ICIDH is the concept of handicap, which was defined as the particular circumstances that place a person with a disability at a disadvantage in comparison to those of a similar age and cultural background (WHO, 1980). A second concept derived from the ICIDH is that occupation in major life roles is measured in relation to the norms and customs of a person's own culture (WHO, 1980). Thus, the ICHDH supports the view that analytic techniques that explore relationships among several groups may add to the understanding of their position in relation to each other.

Recently, the ICF model replaced the concept of *occupation* with *activity* as the focus of interest (WHO, 2001). Activity is defined as "the execution of a task or an action by an individual" (WHO, 2001, p. 14). Thus, both the ICIDH and the ICF suggest that a variable that measures the time devoted by individuals to specific activities is an appropriate choice for the formation of lifestyle groups. The activities that comprise lifestyles should be revealed as differentiated patterns of time use.

The seven CHART items measuring time devoted to life roles were the beginning point for analysis. These seven measures of occupation were treated as distinct dichotomous variables, coded as the presence or absence of participation. Bourdieu's contention that habitus is best portrayed as binary choices made within a single field of action (1977, 1984, 1988, 1992) supports the use of such dichotomous variables (Margolis, 1999).

Method for Forming Clusters

Using the *k*-means clustering procedure in SPSS (Version 11.0), all 976 cases were classified into 4 mutually exclusive lifestyle types. The *k*-means procedure is an iterative partitioning technique. It is appropriate because it can handle a large number of cases and still produces a manageable number of mutually exclusive groups (SPSS, 1999). Because the technique leaves it to the researcher's discretion to specify the desired number of groups, the results require internal and external validation (Aldenderfer & Blashfield, 1984).

Validation of Clusters

The internal and external validities of cluster groupings were evaluated using three different methods. These were split-half clustering, chi-square analysis of tabulated group differences and ANOVA.

Correspondence Analysis

Correspondence analysis is a type of canonical correlation analysis used to analyze the relationship between discrete variables (Clausen, 1998; Greenacre, 1993). Correspondence analysis does not attempt to measure the degree of relationships among variables.

Rather, it seeks to explore multi dimensional data, permitting the discovery of new patterns or relationships (Watts, 1997; Weller & Romney, 1990). Correspondence analysis has been found to be appropriate with very large and very small sample sizes (Green, Schaffer & Patterson, 1988; Greenacre, 1993). It is particularly useful for managing multi-response tables from survey data (Clausen, 1998).

In the current study, homogeneity analysis (sometimes referred to as multiple correspondence analysis) was used to explore the relationship of cluster membership to the life chance factors of race, current marital status, working at time of injury, education completed at the time of injury, and type of disability (categorized by the spinal level and completeness). Next, homogeneity analysis was also used to evaluate life chances represented in three other CHART dimensions—physical independence, mobility, and social integration. It is argued that these life chance variables measure specific resources used strategically by different groups to sustain a particular level of activity.

Support for Combining Analytical Methods

Cluster and correspondence analysis are often used in sequence to explore group differences (Green et al., 1988). Sequential use of these two techniques has the further advantage of integrating the lifestyle perspectives of Giddens (1991) and Bourdieu (1992). Through cluster analysis, it was possible to represent patterns of occupation as distinct lifestyles differentiated from each other by participation in seven occupational roles. Through correspondence analysis, it was possible to identify the structural aspects and resources that best serve to differentiate lifestyles. Further, by expanding the analysis along the lines that Bourdieu suggested (1984, 1992, 1998) and projecting these lifestyles as separate profiles within the boundaries of a single social field, it was possible to construct a map of how the structure of lifestyle interrelates with the environmental and personal dimensions of disability.

The Link to Health Outcomes

The final step of analysis examined whether lifestyle makes a difference to measurable health outcomes. Lifestyle is understood to represent a matrix of factors that contribute to a unitary style of living with a disability. Each of the four lifestyles represents a different life-space within the life-world of disability. These different life-spaces can be analyzed to identify their relationships to particular levels of life satisfaction and self-reported health.

Summary

The complementary techniques of cluster analysis and correspondence analysis create a map of the life-world 2 years after SCI as a space of cultural differentiation. This world is both subjective (e.g., imbedded in the phenomenology of the disability experience) and objective (e.g., grounded in time and space). It is a world of lifestyles created through complex transactions of groups of individuals with situations and environments (Alonzo, 1985). More importantly, it is world in which options for social participation, sustained both by choice and chance, support different patterns of social participation (Cockerham, 2000a).

CHAPTER 5

RESULTS

This chapter summarizes the findings of the study. First, the demographic and neurologic characteristics of the respondents were evaluated. Next, the effect of sample bias was analyzed in respect to inclusion criteria and missing data. Third, results of cluster analysis were reported, and analyses validating four lifestyle clusters were presented. Fourth, differences in activity patterns for each of the four clusters were explored through chi-square analysis. Fifth, life chance factors associated with group membership were identified. Sixth, patterns of personal independence, mobility, social integration, and economic self-sufficiency associated with lifestyle groups were explored. Finally, differences in life satisfaction and self-reported health among the four groups were analyzed.

Sample Demographics Compared to National Estimates

From a sample of 2,585 second anniversary contacts available through the NSCISC, 976 cases (37.8 %) met the study criteria for age at injury and completeness of data. Demographic and neurologic characteristics of the study sample compared to the national estimates from the NSCISC are presented in Table 2. Overall, there was a higher proportion of women in the sample than expected. This bias was most probably introduced by the elimination of cases in which there was a proxy respondent. Previous research with the CHART has found that samples without proxy representation tend to

Table 2

Baseline Characteristics of Sample Compared to National Estimates

Characteristic	Study sample *n*	(%)	National estimate (%)	Significance
Gender				
Male	757	77.6	80.6	$p < .001$
Female	219	22.4	19.4	
Total	976			
Race and ethnicity				
Caucasian	676	69.3	58.1	$p < .001$
African American	193	19.8	28.0	
Hispanic	86	8.8	8.4	
Other	16	1.6	2.5	
Unclassified	5	.4	.4	
Total	976			
Injury level				
Tetraplegia	429	44.0	51.6	$p < .001$
Paraplegia	512	52.5	46.3	
Unclassified	35	3.6	1.6	
Total	976			
Employed at injury	633	64.9	56.9	$p < .001$
Age, mean (*SD*) at injury	36.20	(14.64)	35.3	*ns*

Note. The data in column 4 are from *Facts and figures at a glance- May 2001 by* the National Spinal Cord Injury Network (2001, May). Retrieved June 13, 2002 from http:// www.spinalcord.uab.edu/show.asp?durki=21446.

include a larger proportion of women. In addition, there was a higher proportion of Caucasian respondents than expected. This confirms the findings of Hall et al. (1998) that Caucasian respondents are more likely to have complete information on the CHART. There were fewer than expected tetraplegics (44.0%) and more paraplegics (52.5%) than expected. The rate of employment at the time of injury was significantly higher than national estimates.

Sixty-five percent of sample cases were from respondents who were employed at the time of injury. These findings indicate that, when compared to national estimates, the study sample tended to overrepresent women, Caucasians, persons with lower levels of SCI, and persons who had a previous work history.

Sample Characteristics Compared to Excluded Cases

The MSCISC recognized the problems caused by missing data on individual CHART items (Hall et al., 1998; Richards et al., 1999; G. Whiteneck et al., 1999). Because cases with incomplete data were excluded, the effect of this selection bias was analyzed (see Table 3).

As compared to second anniversary cases excluded from this study because of an interview with a proxy respondent or incomplete CHART scores, the study sample showed significant bias toward women. However, the percentages were similar to the profile of second anniversary contacts reported by Putzke et al. (2002) where the sample was 78% male and 22% female. The apparent overrepresentation of women in the current study was deemed to be acceptable because it was assumed that gender shapes lifestyle. Because national estimates are that over 80% of persons with SCI are male, lifestyle differences between females may tend to be glossed over.

The ethnic composition of the study sample was 69.3% Caucasian, 19.8% African American, and 8.8% Hispanic. The bias toward Caucasian respondents in the current study was greater than that reported in two recent studies using the CHART. A study by Richards et al. (1999) used sample proportions of 65% Caucasian, 25% African American, and 6% Hispanic. Putzke et al. (2002) studied life satisfaction 2 years after injury in a sample

Table 3

Comparison of Study Sample to Excluded Second Anniversary Cases

Characteristic	Study sample *n*	Study sample %	Excluded *n*	Excluded %	Significance
Gender					
Male	757	77.6	1307	81.2	$p < .05$
Female	219	22.4	302	18.8	
Total	976		1609		
Race and ethnicity					
Caucasian	676	69.3	862	53.6	$p < .001$
African American	193	19.8	477	29.6	
Hispanic	86	8.8	213	13.2	
Other	16	1.6	37	2.3	
Unclassified	5	0.5	20	1.2	
Total	976		1609		
Injury level					
Tetraplegic	429	44.0	768	47.7	*ns*
Paraplegic	512	52.5	792	49.2	
Unclassified	35	3.6	49	3.0	
Total	976		1609		
Work status at injury working or in school	716	73.4	1123	69.8	*ns*
Age, mean (*SD*) at injury	36.20	(14.64)	32.43	(15.23)	$p < .001$

where proportions were 69% White and 23% Black. Although the proportion of Caucasians in the latter study was also, 69%, the proportion of Hispanic respondents was not separated out from other respondents as it was in the current study. Based on this, the current sample was judged to overrepresent Caucasian respondents and underrepresent African Americans. This is unfortunate because racial and ethnic background can exert an important influence on lifestyle.

The mean age of study respondents ($M = 36.20$, $SD = 14.64$) was found to be significantly higher than that found in the cases excluded ($M = 32.43$, $SD = 15.23$), $t(2582) =$

6.18, $p < .001$. Considering that the age of both groups was in the middle 30's, it was felt that this bias was unlikely to affect conclusions related to lifestyle.

No significant differences were found between the study sample and excluded cases regarding the proportion of paraplegics, tetraplegics, and unclassified cases, χ^2 (2, $N = 2{,}585$) = 3.68, $p = .15$. This finding is important because the functional level of the respondent influences the degree of mobility and may influence the need for personal assistance. Similarly, the proportion from both groups who were working or in school when they were injured was equivalent, χ^2 (2, $N = 2{,}585$) = 4.27, $p = .12$

Therefore the exclusion criteria applied in this current study, particularly the exclusion of cases with proxy respondents, appear to have introduced some bias toward second anniversary follow-up contacts made with women and Caucasians. However, the age of sample at injury more closely approximated national estimates for persons with SCI. In all other respects, the 976 cases selected appear to be typical of other second anniversary contacts.

Participation in Occupation by the Study Sample

The definitions for the seven CHART variables measuring occupation have been presented previously in Table 1. Table 4 summarizes participation of all sample subjects in these areas of occupation. Three of the occupational areas, homemaking, recreation, and self-improvement, showed high levels of participation. Two out of three respondents participated in homemaking and four out of five in recreation and self-improvement activities. This pattern is quite distinct from work, school, volunteer work, and home maintenance

Table 4

Participation in the Seven Areas of Occupation at Year 2 (N = 976)

Occupational Area	*n*	%
Paid employment	191	19.6
School	149	15.3
Homemaking	666	68.2
Home Maintenance	368	37.7
Volunteer work	129	13.2
Recreation	816	83.6
Self-Improvement	787	80.6

all of which showed comparatively low levels of participation. Paid employment, school, homemaking, and volunteer work are important social roles that are affected by disability (WHO, 1980). They are major life domains (Dijkers, Whiteneck, & El-Jahoudi, 2000). Moreover, from a lifestyles perspective, each represents a milieu of action in which activity organizes access to time and space and results in a particular identity (Giddens, 1991). For this reason, the CHART dimension measuring occupation was chosen to create lifestyle profiles. Each variable was recoded to a binary format (does not engage in this occupation versus does engage in this occupation). For potential occupational lifestyles were created by *k*-means cluster analysis so that the patterns resulting from various combinations of activity could be explored.

Analysis of Lifestyle Clusters

The goal of cluster analysis is to form a specific number of homogeneous groups differentiated by qualitative characteristics of group members (Romesburg, 1984; SPSS, 1999). The *k*-means clustering method is recommended because it easily handles data sets larger than 200 cases (SPSS, 1999).

When using this clustering procedure, the researcher uses a priori information to specify how many groups the data will support. This choice is then tested against Fisher's *F* ratio to estimate the probability that homogeneous groups have been formed. When the frequency with which each occupation was performed was examined, it was clear that three activities, homemaking, recreation, and self-improvement showed high participation whereas the remaining four areas did not. This pattern suggested that possibly activities performed least might have a greater power to differentiate among groups than those that were performed most. Therefore, it was posited that the study sample could be subdivided into as few as three or as many as four separate clusters.

An ANOVA showing the contribution of each occupation to the formation of four groups is presented in Table 5. Larger values of Fisher's *F* ratio are indicative that a variable drives the clustering process, whereas smaller values indicate that the variable plays a less significant role in differentiating among cluster groups (SPSS, 1999).

Table 5

ANOVA Table of Variables Contributing to the Formation of Cluster Groups

Occupation	Cluster *MS*	*df*	Error *MS*	*df*	*F*	Significance
Paid employment	18.550	3	.101	972	184.040	< .001
School	20.503	3	.067	972	307.800	< .001
Homemaking	41.957	3	.088	972	476.061	< .001
Home maintenance	32.901	3	.134	972	244.982	< .001
Volunteer work	10.812	3	.082	972	132.171	< .001
Recreation	10.323	3	.106	972	97.607	< .001
Self-improvement	4.639	3	.142	972	32.563	< .001

The results presented in Table 5 show that the occupations of homemaking, school, home maintenance, and paid employment played a larger part than the other variables in allocating persons to groups. The adequate discriminatory power of these four variables suggested that four separate groups were likely.

When the final cluster centers for four groups were evaluated, characteristics for each of the four clusters were confirmed (see Table 6). Cluster 1, the largest group, was made up of 414 members or 42.4% of the study sample. Cluster 3 was next in size with 303 members (31.5%), followed by Cluster 4 with 140 members (14.3%) and Cluster 2 with 119 members (12.2%). Each cluster except for Cluster 3 had one or more occupations in which over 90% of the members participated. Because the data had been coded 0 or 1 before the cases were clustered, the final cluster centers can also be interpreted as the percentage of engagement in each occupation for each cluster group. The data indicate that 73.5 % of the sample could be classified into Cluster 1 or Cluster 3. The remaining 26.5% was divided between Cluster 2 and Cluster 4.

Table 6

Final Cluster Centers for Four Profiles of Occupation (N= 976)

	Cluster			
Occupation	1 (*n* = 414)	2 (*n* = 119)	3 (*n* = 303)	4 (*n* = 140)
Paid employment	.11	.10	.08	.78
School	.08	.82	.03	.08
Homemaking	.96	.81	.15	.91
Home maintenance	.52	.09	.03	.94
Volunteer work	.00	.45	.06	.41
Recreation	.95	.97	.57	.96
Self-improvement	.87	.90	.63	.92

Examination of cluster centers allowed the occupations represented within each profile to be identified. The profile of Cluster 1 combined homemaking, home maintenance, recreation, and self-improvement; no member of Cluster 1 engaged in volunteer work. For this reason, Cluster 1 was identified *home-based.* The profile of Cluster 2 combined school, homemaking, recreation, and self-improvement; slightly less than half engaged in volunteer work. Consequently, Cluster 2 was identified as *school-based.* The profile of Cluster 3 showed low levels of participation in all areas except recreation and self-improvement. In this pattern of low participation, Cluster 3 was distinctly different from all of the other groups. Consequently, Cluster 3 was identified as *isolated.* Finally, Cluster 4 combined paid work with homemaking, home maintenance, recreation, and self-imp improvement; this was the only group to have significant involvement in paid work as well as volunteer work. Consequently, Cluster 4 was identified as *work-based.*

Although the results were strongly indicative that four mutually exclusive groups had been formed, further analysis of the clusters was necessary to demonstrate the internal and external validities of cluster groupings.

Cluster Validation

Aldenderfer and Blashfield (1984) recommended the use of multiple strategies for validation of clusters. Accordingly, two methods of internal validation and one method of external validation were used.

Split-Half Clustering

The study sample was randomized into split halves with 508 cases in subsample A and 468 cases in subsample B. The k-means cluster procedure was performed separately on each subsample using the cluster centers for the entire sample as seeds. The results are shown in Tables 7 and 8.

Table 7

Variables Contributing to the Formation of Clusters in Subsamples A and B

	Subsample A		Subsample B	
Occupation	*F*	Significance	*F*	Significance
Paid employment	100.24	< .001	87.35	< .001
School	396.30	< .001	108.35	< .001
Homemaking	737.84	< .001	219.00	< .001
Home maintenance	65.19	< .001	140.92	< .001
Volunteer work	66.34	< .001	58.77	< .001
Recreation	14.15	< .001	62.31	< .001
Self-improvement	14.70	< .001	15.85	< .001

Table 8

Final Cluster Centers in Subsamples A and B

	Subsample A ($N = 508$)				Subsample B ($N = 468$)			
Occupation	1 ($n = 216$)	2 ($n = 77$)	3 ($n = 141$)	4 ($n = 74$)	1 ($n = 199$)	2 ($n = 52$)	3 ($n = 150$)	4 ($n = 67$)
Paid employment	.12	.09	.07	.78	.10	.10	.10	.78
School	.00	.87	.04	09	.11	.79	.02	.06
Homemaking	1.00	.81	.00	.86	.95	.85	.18	.94
Home maintenance	.41	.22	.11	.91	.54	.08	.02	.97
Volunteer work	.00	.40	.06	.46	.00	.44	.05	.37
Recreation	.84	.96	.70	.97	.97	1.00	.55	.96
Self-improvement	.84	.90	.62	.92	.88	.90	.64	.93

Both subsamples followed the general pattern observed in the sample as a whole (see Table 6). Differences in school, paid work, homemaking, and home maintenance provided the greatest differentiation among the clusters. Lack of participation in volunteer work continued to be a hallmark of the home-based cluster (Cluster 1). An overall pattern of diminished engagement in all areas continued to be a hallmark of the isolated cluster (Cluster 3).

Cases with engagement in school were represented in Cluster 2, whereas cases with engagement in paid employment and volunteer work were represented in Cluster 4.

Validation Through Cross-Tabulation of Group Differences

Heuristically, lifestyles are made up of discrete and practical strategies enacted by similar individuals (Bourdieu, 1998). Bourdieu's (1992) approach to class analysis seeks to identify pertinent properties that divide one class of individuals from another. He wrote that such analysis " is not done in one stroke but by trial and error, [through which] ...one progressively constructs social spaces which...are what makes the whole reality of the social world" (Bourdieu, 1992, pp. 230-231). Chi-square analysis of the tabulated differences in occupation for the four groups was used to validate the pertinent properties that separated them (see Table 9).

Because the omnibus χ^2 statistic was significant for each of the seven occupations, posthoc tests were done using Bonferroni's method to control for multiple comparisons. An alpha level of .001 was chosen because of the number of cross-tabulations required. These results are summarized in Table 10.

Posthoc analysis shows clearly the association between the work-based cluster and paid employment. It shows the association between the school-based cluster and school. A low level of engagement in homemaking differentiates the isolated cluster from all other groups; it also differentiates between the school-based and home-based clusters. Home maintenance differentiates among all clusters except for the isolated cluster and the school-based cluster; both show low rates of participation in home maintenance activities. Volunteer work differentiates among all groups except school-based and work-based; both show

Table 9

Frequency and Percent of Participation in Occupation by Lifestyle Group (N = 976)

	Lifestyle Group										
	Home-based		School-based		Isolated		Work-based		Total		
Occupation	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%	χ^2
Paid employment	45	10.9	12	10.1	25	8.3	109	77.9	191	19.6	353.56***
School	32	7.7	98	82.4	98	2.6	11	7.9	149	15.3	475.49***
Homemaking	397	95.9	96	80.7	96	15.2	127	90.7	666	68.2	580.75***
Home maintenance	215	51.9	11	9.2	10	3.3	132	94.3	368	37.7	420.23***
Volunteer work	0	00.0	54	45.4	17	5.6	58	41.4	129	13.2	282.79***
Recreation	392	94.7	116	97.5	173	57.1	135	96.4	816	83.6	225.96***
Self-improvement	460	87.0	107	89.9	191	63.0	129	92.1	787	80.6	89.13***

***$p < .001$.

Table 10

Results for Pairwise Comparisons of Engagement in Occupation

Comparison	Pearson chi-square	Cramer's *V*
Paid employment		
Work-based vs. home-based	233.91***	.650
Isolated vs. work-based	219.89***	.705
School-based vs. work-based	118.89***	.677
Isolated vs. home-based	1.36	.044
Isolated vs. school-based	.36	.029
Home-based vs. school-based	.06	.001
School		
Isolated vs. school-based	288.64***	.827
Home-based vs. school-based	279.11***	.807
School-based vs. work-based	146.46***	.752
Isolated vs. home-based	8.60	.110
Isolated vs. work-based	6.35	.120
Work-based vs. home-based	.01	.002
Homemaking		
Isolated vs. home-based	482.71***	.821
Isolated vs. work-based	229.52***	.720
Isolated vs. school-based	164.14***	.624
Home-based vs. school-based	30.85***	.241
Work-based vs. home-based	5.48	.099
School-based vs. work-based	5.42	.145
Home maintenance		
Isolated vs. work-based	363.96***	.906
Isolated vs. home-based	192.16***	.518
School-based vs. work-based	188.12***	.852
Work-based vs. home-based	80.19***	.380
Home-based vs. school-based	68.97***	.360
Isolated vs. school-based	6.38	.123
Volunteer work		
Home-based vs. school-based	209.05***	.626
Work-based vs. home-based	191.57***	.588
Isolated vs. school-based	96.56***	.478
Isolated vs. work-based	87.35***	.444
Isolated vs. home-based	23.79***	.182
School-based vs. work-based	.05	.040
Recreation		
Isolated vs. home-based	147.99***	.454
Isolated vs. work-based	69.92***	.397
Isolated vs. school-based	64.56***	.391
Home-based vs. school-based	1.61	.055
Work-based vs. home-based	.69	.035
School-based vs. work-based	.24	.030
Self-improvement		
Isolated vs. home-based	56.26***	.280
Isolated vs. work-based	44.44***	.302
Isolated vs. school-based	29.75***	.266
Work-based vs. home-based	2.72	.070
Home-based vs. school-based	.75	.037
School-based vs. work-based	.40	.039

***$p < .001$.

similar rates of participation in volunteer work. In recreation and self-improvement, the isolated group clearly stands out from the others. All other groups show similar rates of participation in these two occupations. Based on these patterns, group profiles were constructed (see Figure 3).

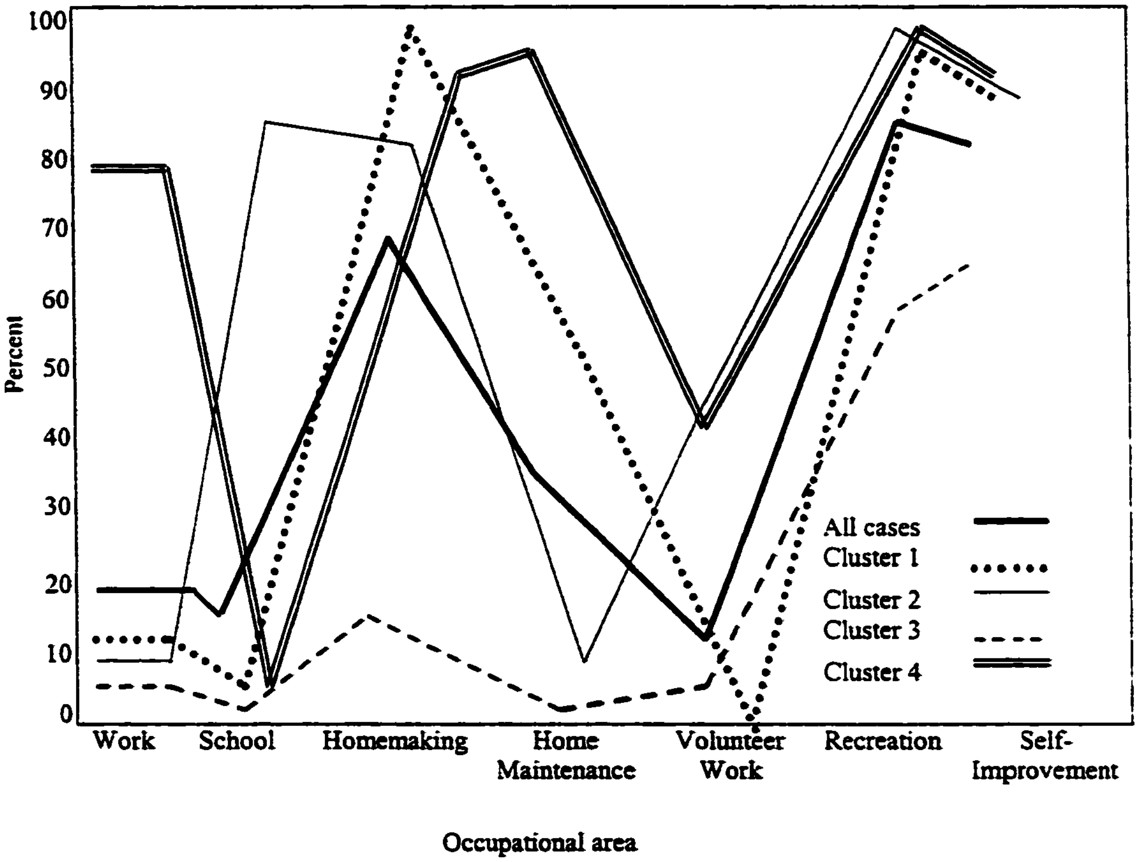

Figure 3. Profile of the percentage of people in each group for each occupation.

Engagement in the seven occupations measured by the CHART shows clearly that, 2 years after injury, people with SCI show four distinct activity patterns. But, is it true that these four patterns are, in fact, the basis for health lifestyles? Strong arguments in support of this contention can be found in the health lifestyles literature. The assertion that engagement in occupation contributes to lifestyle is supported by Giddens' (1991) definition of lifestyle as " a more or less integrated set of practices which an individual embraces, not only because such practices fulfill utilitarian needs, but because they give material form to a particular narrative of self identity" (p. 81). For a person with a disability to be an employee or a homemaker, a student, or a volunteer means that he or she is identified by a normative role involving participation with society, not merely as a person with a disability. Participation in one or more core social roles is the mark of an "abled" rather than a "disabled" lifestyle

Role enactment as the basis for lifestyle is also supported by Siegrist (2000), who used social exchange theory to argue for a strong association between the agency derived through participation in core adult roles and the experience of health. Siegrist argued that exclusion from the structure of opportunity erodes self-efficacy and self-esteem, resulting in higher levels of social stress and ultimately to poor health. Thus, he contended that lack of engagement in one or more core roles is associated not only with lower satisfaction but also with poorer health.

Positing a relationship between occupational engagement and lifestyle is consistent with Bourdieu's perspective that lifestyles exist within a space of differences. He argued that it is through approximation of the different conditions of existence one is able to identify and characterize different classes (Bourdieu, 1984, 1998). Based on this line of reasoning, it would be expected that these four profiles represent distinctly different classes of people with SCI and different ways of experiencing the life world of disability.

Finally, basing lifestyle on patterns of social engagement reinforces Cockerham's (2000b) definition of health lifestyles as collective patterns of behavior enacted from available options. The option of remaining isolated is presumably open to all persons after SCI whereas the options of becoming a student, a worker, a homemaker, or a volunteer may not be available. For all of these reasons, all the remaining analyses carried out in this study assume that these occupationally defined cluster groups represent lifestyles adopted after the onset of SCI.

External Validation of Clusters

One method was used to examine the external validity of cluster membership. This analysis parallels more traditional techniques used in medical rehabilitation to examine health-related quality of life (Dijkers et al., 2000; Putzke et al., 2002). One-way ANOVA confirmed external validity of group differences in respect to levels of life satisfaction measured by the SWLS.

The SWLS measures 5 items on a 7-point scale. Previous studies have established that the expected mean is between 23.37 and 25.80 (Diener et al., 1985; Pavot et al., 1991), suggesting that people are, on average, slightly positive in their ratings of the five statements. Group means for the sample are presented in Table 11.

The sample mean was 18.49, indicating that overall respondents were less positive in their appraisals of their life circumstances. The means for isolated group (15.59) and for the home-based group (18.36) indicated that on average respondents in these groups were neutral or negative in their ratings of life satisfaction. The mean of the work-based group

Table 11

Mean Scores on the Satisfaction With Life Scale

Lifestyle group	*n*	*M*	*SD*	*F*	Significance
Home-based	414	18.36	7.53	35.64	< .001
School-based	119	21.32	7.82		
Isolated	303	15.59	7.52		
Work-based	140	22.74	7.17		
Total	976	18.49	7.90		

was highest (22.74), although it was still significantly lower than the average of the two means reported by Diener, $t(139) = -3.038, p = .003$. Because the overall Fisher's *F* ratio was significant, $F(3, 972) = 35.64, p < .001$, post hoc analysis was carried out. Homogeneity of variance between groups was confirmed by Levene statistic $(3, 972) F = .956, p > .05$. The Scheffe method was used to examine group differences with adjusted probability values to reflect multiple comparisons (see Table 12).

Table 12

Multiple Comparisons for Satisfaction with Life Scores

	Mean Difference			
Lifestyle	Home-based	School-based	Isolated	Work-based
Home-based		2.96*	-2.76***	4.39***
School-based	-2.96*		-5.73***	1.42
Isolated	2.76***	5.73***		7.15***
Work-based	-4.39***	-1.42	-7.15***	

$*p < .05$, $***p < .001$.

Statistically significant differences in life satisfaction were found among all lifestyles except the work-based and school-based lifestyles. These two groups were more positive in their appraisals of life satisfaction. However, their means on the SWLS were lower than might be expected of the general population. The greatest differences were found between the work-based group and the isolated group.

These findings confirm that cluster membership is associated with different levels of satisfaction with life. People whose lifestyles included activities related to paid employment or school, homemaking, and volunteer work were more positive in their ratings of life satisfaction. Conversely, people who engaged in few activities and who exclude paid work, school, or volunteer work are more negative in their appraisals of life satisfaction.

Summarizing the findings thus far, four groups were identified using *k*-means cluster analysis to group cases based on the pattern of engagement in the seven occupations identified by the CHART. It is consistent with definitions found in the health lifestyles literature that these represent distinct lifestyles for people with SCI. Each lifestyle group showed a pattern of participation dominated by either unusually high levels of participation or lack of participation in one or more of the seven occupational roles. Based on configuration of activities, the lifestyles were identified as home-based, school-based, isolated, or work-based. Respondents in two of the four lifestyles (work-based or school-based) reported significantly higher levels of life satisfaction measured by the SWLS. Respondents in the isolated group were significantly more negative in their appraisals of life satisfaction.

Differences in Life Chances Among Lifestyle Groups

The next phase of analysis examined life chance factors that might be associated with a particular lifestyle group. Previous health lifestyles research has shown that life chances resulting from gender, race, age, work experience, level of education, and marital status create important differences in the health behavior of groups (Abel, 1991; Cockerham, 2000a; Cockerham et al. 1997, 2002). However, previous studies using the CHART have been less able to demonstrate a strong influence from demographic and neurologic characteristics on specific rehabilitation outcomes (Putzke et al., 2002). It has been reported that, even when life choice factors are grouped together, the six life chance factors of neurologic classification, age, years postinjury, gender, ethnicity, and level of education predicted 29% or less of the variance in CHART subscale scores (Whiteneck et al.1999). However, Putzke et al. (2002) found that being male, nonwhite, having lower levels of education and not engaging in work or school resulted in reduced levels of life satisfaction 2 years after injury.

Because the definition of health lifestyle proposed by Cockerham et al. (2002) suggested a relationship between life chances and life choices, it is pertinent to ask whether particular life chances are associated with membership in a particular lifestyle group. Cross-tabulation was used to explore three separate groupings of life chance factors. Demographic variables were explored first, variables related to life experience were explored second, and injury-related variables were explored last.

Gender, Race, Age, and Current Marital Status

The effects of gender, race, age, and marital status on lifestyle were explored, and the results are summarized in Table 13. The composition of all four lifestyle groups was found to be equivalent in respect to gender, $\chi^2(3, N= 976) = 5.20$, $p < .05$. However, significant differences between groups were found for race $\chi^2 (9, N = 976) = 60.03, p < .001$ and current marital status, $\chi^2 (3, N = 976) = 30.58, p > .001$.

In addition, three of the lifestyle groups were significantly different from each other in regard to the age of the respondent at the onset of injury (see Table 14). Computation of the Levene statistic showed that variances among groups were not equal, $F(3, 972) = 17.61, p < .001$. Therefore, the Tamhane T2 correction was used to carry out multiple comparisons. The results are shown in Table 15. These analyses show that the home-based and work-based lifestyles tended to be practiced by respondents who were of average age at onset. The school-based lifestyle was adopted by those who were younger whereas the isolated lifestyle by those who are relatively older.

Life Chance and Life Experience

Life chance variables more closely associated with the effect of life experience on lifestyle were also analyzed. These included the level of education completed at onset and participation in work or school at the time of injury (see Table 16).

There was a significant omnibus chi-square statistic for differences among the lifestyle groups on the level of education, $\chi^2(9, N=976) = 60.7, p < .001$, and work or school status, $\chi^2(6, N=976) = 39.16$, $p < .001$. More respondents in the school-based lifestyle group had completed high school but had not attended college. More respondents in the

Table 13

Gender, Race, Age, and Current Marital Status by Lifestyle

	Lifestyle Group									
	Home-based		School-based		Isolated		Work-based		Total	
Life chance	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Gender										
Male	312	75.4	87	73.1	245	80.9	113	80.7	757	77.6
Female	102	24.6	32	26.9	58	19.1	27	19.3	219	22.4
Total	414		119		303		140		976	
Race/ethnicity										
Caucasian	289	69.8	90	75.6	175	57.8	122	87.1	676	69.3
African American	77	18.6	13	10.9	95	31.4	8	5.7	193	9.8
Hispanic	41	9.9	10	8.4	27	8.9	8	5.7	86	8.8
Other or unknown	7	1.7	6	5.0	6	2.0	2	1.4	21	2.2
Total	414		119		303		140		976	
Marital status										
Married	154	37.2	25	21.0	113	37.3	76	28.1	368	37.7
Total	414		119		303		140		976	
Age at injury										
M (SD)	35.41	(13.59)	27.79	(11.38)	40.82	(16.62)	35.69	(11.62)	36.20	(14.63)

Table 14

Mean Differences in Age at Onset Among Lifestyle Groups

Lifestyle group	*n*	*M*	*SD*	*F*	Significance
Home-based	414	35.41	13.59	25.36	< .001
School-based	119	27.29	11.38		
Isolated	303	40.82	16.62		
Work-based	140	35.69	11.63		
Total	976	36.20	14.64		

Table 15

Multiple Comparisons for Age at Injury

	Mean difference			
Lifestyle	Home-based	School-based	Isolated	Work-based
Home-based		-7.62***	-5.41***	.28
School-based	7.62***		13.03***	7.90***
Isolated	-5.41***	-13.03***		-5.13***
Work-based	-.28	-7.90***	5.13***	

*** $p < .001$

Table 16

Educational Level and Work Status at Onset by Lifestyle

	Lifestyle group									
	Home-based		School-based		Isolated		Work-based		Total	
Life chance	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Educational level										
11th grade or less	102	24.6	27	22.7	95	31.4	15	10.7	239	24.5
High School/GED	225	54.3	76	63.9	155	51.2	72	51.4	528	54.1
Attended college	59	14.3	13	10.9	26	8.6	44	31.4	142	14.5
Unknown	28	6.8	3	2.5	27	8.9	9	6.4	67	6.9
Total	414		119		303		140		976	
Work status										
Employed or in school	307	74.2	99	83.2	190	62.7	120	85.7	716	73.4
Total	414		119		303		140		976	

Note. GED = General Equivalency Diploma.

work-based group had attended college prior to injury and were working when injured. The isolated group had the highest percentage of respondents who had not finished high school; fewer of them were working when injured. Post hoc testing of significant differences among groups was deferred because these life chances would be analyzed by correspondence analysis.

Cause of Injury and Extent of Impairment

For people with serious physical impairments, one further group of variables is important. These variables define the cause and specific nature of injury. Although these variables are not life chances in a traditional sense, they do form a backdrop of life conditions that are not amenable to individual choice or control. Especially important for persons with SCI is whether one experiences paraplegia (paralysis of the lower body) or tetraplegia (paralysis of all four limbs) and whether the injury has spared muscular and sensory function at body levels below the lesion (completeness of injury).

Motor vehicle accidents, violence, and falls are the most frequent causes of injury to the spinal cord. In the entire sample, they account for 44.9%, 17.2%, and 21.0%, respectively. No significant difference was associated with lifestyle group membership, $\chi^2(9, N = 976) = 14.87$, $p = .09$. All groups had similar proportions of members injured by motor vehicle accidents, violence, falls, and all other causes.

The association between the type of injury and lifestyle group was explored. Of the 941 cases in which the level of injury was classified, 54.4% were paraplegics, 29.5% were low tetraplegics, and 16.0% were high tetraplegics. Completeness of injury was classified according to the standards of the American Spinal Injury Association (ASIA). Of the 953 cases in which the completeness of injury was classified, 78.2% had sustained functionally complete lesions (ASIA score A, B, or C) and 21.8% had functionally incomplete lesions (ASIA score D).

Because the spinal level of injury and the completeness of injury work together to create the level of motor function, a new variable was created to combine both measures. There were six levels of this variable, two for high tetraplegics (complete and incomplete), two for low tetraplegics (complete and incomplete), and two for paraplegics (complete and incomplete). The frequency of each category by lifestyle is shown in Table 17.

Table 17

Extent of Motor Impairment by Lifestyle Group (N = 933)

	Lifestyle Group									
	Home-based		School-based		Isolated		Work-based		Total	
Life chance	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Injury type										
Complete injury										
High tetraplegic	23	5.8	14	12.2	55	19.0	8	6.2	100	10.7
Low tetraplegic	73	18.3	32	27.8	78	27.0	18	13.8	201	21.5
Paraplegic	221	55.4	50	43.5	105	36.3	61	46.9	437	46.8
Total	317		96		238		87		738	
Incomplete injury										
High tetraplegic	24	6.0	4	3.5	13	4.5	7	5.4	48	5.1
Low tetraplegic	30	7.5	6	5.2	22	7.6	18	13.8	76	8.1
Paraplegic	28	7.0	9	7.8	16	5.5	18	13.8	71	7.6
Total	82		19		51		43		195	

Chi-square analysis confirmed that the percentages of persons with different levels of injury were not the same among the four lifestyle groups, $\chi^2(15, N = 933) = 72.07 = p < .001$. Post hoc analysis of group differences was carried out in the correspondence analysis that follows.

Correspondence Analysis of Life Chances and Lifestyle

Of the eight life chance variables that were analyzed, six showed the ability to differentiate among one or more lifestyle groups. These six variables, race or ethnicity, age, current marital status, education completed at injury, work or school status at injury, and the extent of injury, represent what Bourdieu (1992) would call a pertinent property. Pertinent properties have the ability to differentiate persons into classes. Describing this differentiating capacity, Bourdieu wrote

> one of the main difficulties in relational analysis is that, most of the time, social spaces can be grasped only in the form of distributions of properties among individuals and concrete institutions...[it is] by trial and error that one progressively constructs social spaces which, though they reveal themselves only in the form of highly abstract, objective relations, and although one can neither touch them nor "point to them" are what makes the whole reality of the social world. (1992, pp. 231-232)

The analysis that follows used homogeneity analysis to map the social space of lifestyle as is formed by four of the six pertinent lifestyle variables—age, race or ethnicity, educational background, and work status at injury.

Homogeneity analysis of multiple properties begins with the construction of a matrix of data called a Burt matrix (Greenacre, 1993). Row and column variables are cross-tabulated and presented in a single array (Bourdieu, 1992; Greenacre, 1993). The Burt matrix for lifestyle and four life choice variables is presented as Table 18.

Homogeneity analysis assigns weighted coordinates to each condition based on row and column frequencies. The scaled scores in each dimension are computed to show the highest degree of separation of groups defined by the other variable (Greenacre, 1993). Each category is shown as the average position of the respondents in that category. Homogeneity analysis is appropriate for multi response survey data because it permits display

Table 18

Burt Matrix for Life Chance Variables (N = 955)

	Lifestyle				Race or ethnicity			Age at injury (years)			Work status			Education		
	Home-based	School-based	Isolated	Work-based	Caucasian	African American	Hispanic	16-28	29-36	>36	At work	In school	Not at work or in school	11th grade or less	HS or GED	Attended college
Lifestyle																
Home-based	407				289	77	41	157	84	173	278	29	101	102	225	59
School-based		113			90	13	10	81	15	23	65	34	19	27	76	13
Isolated			297		175	95	27	89	46	168	177	13	99	95	155	26
Work-based				138	122	8	8	37	47	56	113	7	19	15	72	44
Race or ethnicity																
Caucasian	289	90	175	122	676			225	141	310	469	63	136	120	388	129
African American	77	13	95	8		193		94	26	73	92	12	78	79	89	6
Hispanic	41	10	27	8			86	40	31	25	58	6	21	36	42	2
Age at injury (years)																
16-28	157	81	89	37	225	94	40	364			192	81	84	125	206	19
29-36	84	15	46	47	141	26	21		192		153	1	34	40	113	27
>36	173	23	168	56	310	73	25			420	288	0	120	74	209	96
Work status																
At work	278	65	177	113	469	92	58	192	153	288	633			111	374	109
In school	29	34	13	7	63	12	6	82	1	0		238		36	45	2
Not at work or in school	101	19	199	19	136	78	21	84	34	120			83	83	101	31
Education completed																
11th grade or less																
HS or GED	102	27	95	15	120	79	129	125	40	74	111	36	83	239		
Attended college	225	76	155	72	388	89	6	206	113	209	374	45	101		528	
	59	13	26	44	129	6	2	19	27	96	109	2	31			142

Note. HS = High School diploma; GED = General Equivalency Diploma of interrelationships between several variables and categories simultaneously (Bourdieu, 1984,1992; Clausen, 1998). The homogeneity analysis by means of alternating squares procedure (HOMALS) in SPSS Categories (Version 8) was used for this analysis. The weighted scores for row and column variables are shown in Table 19.

In homogeneity analysis, the scaled scores in each dimension are computed to show the highest degree of separation of groups defined by the other variable (Greenacre, 1993). Each category is shown as the average position of the respondents who are classified in a particular category. The absolute value of these coordinates is less important than the fact that they allow the relative position of each group and each condition to be displayed within a single spatial boundary. Characteristics with coordinates that exist in relatively close proximity to each other are plotted close to each other. Characteristics with coordinates that are unlikely to be associated with each other are plotted futher apart.

The model fit in homogeneity analysis is measured by eigenvalues computed for each dimension as well as the model as a whole. Eigenvalues estimate the degree of correspondence achieved by the model. This number can also be interpreted as the variance explained by the model. As a rule, the more variables that are included in a model, the lower the eigenvalues for each dimension. In this current analysis, a moderate fit was achieved by the two-dimensional model. Life chance variables accounted for 36.3% of the variance and lifestyle variables for 31.8% The computed eigenvalue for total model fit was .6816 or 68.2%. These results indicate that that these four life chance variables together do not entirely explain lifestyle.

A two-dimensional map shows the relative positions of different groups and classes. One of the strengths of the homogeneity analysis technique is that it allows the

Table 19

Weighted Scores for Row and Column Variables Measuring Life Chances

		Score in dimension	
Variable	Marginal frequency	Life chance	Lifestyle
Rows			
Race or ethnicity			
Caucasian	676	.306	-.285
African American	193	-.830	1.055
Hispanic	86	-.561	.041
Missing	21		
Age at injury			
16-28 years	364	-.893	-.469
29-36 years	192	.596	-.242
>36 years	420	.504	.546
Work status			
Working	633	.394	-.161
In school	83	-1.774	.953
Not working or in school	238	-.385	-1.617
Missing	22		
Education			
11th grade or less	239	-.914	.475
High school or GED	528	.064	-.248
Attended college	142	1.225	-.088
Missing	67		
Columns			
Home-based	414	.040	-.009
School-based	119	-.913	-.1.407
Isolated	303	-.193	.891
Work- based	140	1.081	-.620

Note. GED = General Equivalency Diploma.

relative positions of groups to be considered along with the conditions associated with those positions. These positions are mapped in two-dimensional space. A map of the space of difference for lifestyles and four life chances is shown in Figure 4.

The map shows that relatively few respondents were in school at the time of injury. Those who were tended to adopt a school-based lifestyle 2 years after injury. In addition

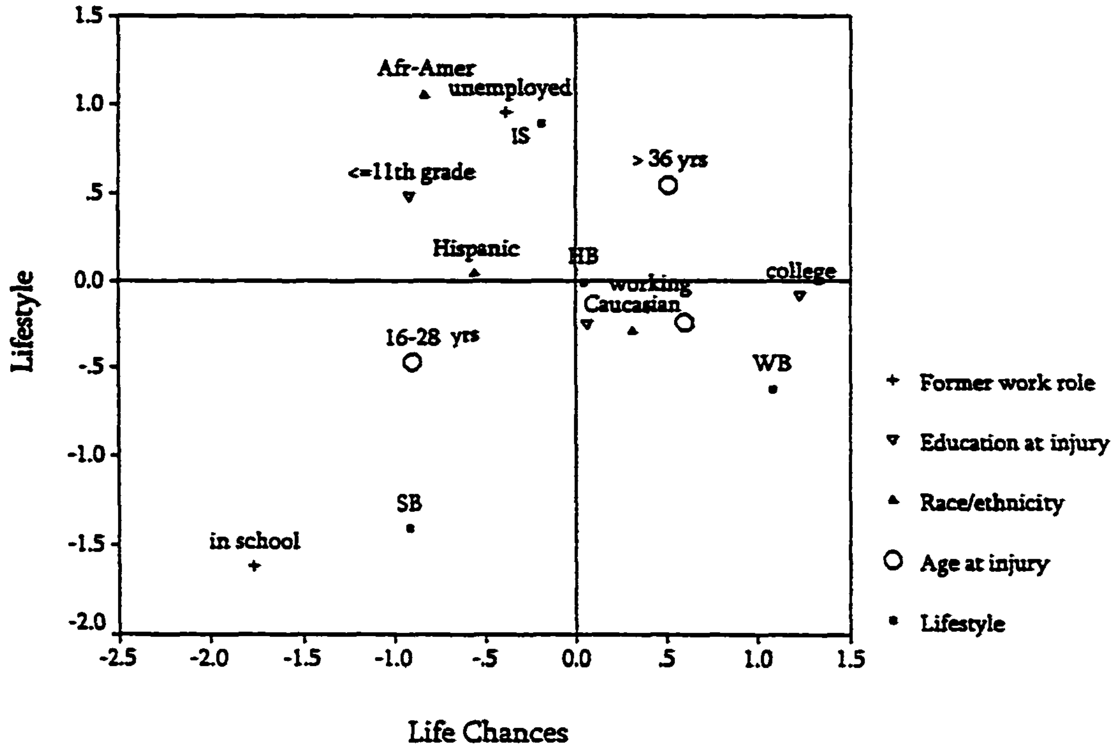

Figure 4. A spatial map of life chance variables among lifestyle groups.

Note. HB = home-based; SB = school-based; IS = isolated; WB = work based; Afr-Amer = African American; yrs = years.

to having the greatest correspondence with completing school, this group was comparatively younger at the time of onset. In contrast, the work-based lifestyle is most clearly associated with having attended or completed college when the SCI occurred. This finding highlights the importance of education, either the level already attained or the need to complete what had been begun, as a pertinent variable in differentiating lifestyle groups.

The influence of race and ethnicity is also shown on the map. Relative to other groups, African Americans were associated more with the isolated lifestyle whereas Hispanics were associated with a home-based lifestyle. In addition, African Americans were less likely to be working or in school when they were injured. Before too much is made of this, however, one must be reminded that the study sample was biased toward Caucasian respondents and may not give an adequate picture of the lifestyles of African Americans or Hispanics.

As compared to other lifestyle groups, those in the isolated lifestyle tended to be less well educated and older at the time of injury. The isolated lifestyle was also more strongly associated with not being in school or employed at the time of injury relative to other groups. In contrast, the home-based group was more strongly associated with having been working at onset than were other lifestyle groups. This group tended to be of average age at onset, rather than older (isolated) or younger (school-based).

Homogeneity analysis provides a map that is suggestive of a complex relationship between life styles and life chances. Measuring the specific effect of each type of chance would be possible in follow-up studies using analysis of variance or multiple regression techniques.

Evaluation Through Correspondence Analysis of Differences on Dimensions Measured by the CHART

A central tenet of Bourdieu's conception of habitus (1984, 1992, 1998) is that the different strategies persons use to enact lifestyle become visible through their everyday practices. The CHART offers information on four lifestyle practices other than engagement in occupation. These are practices related to physical independence, mobility, social integration, and economic self-sufficiency.

Bourdieu related lifestyle not only to the static conditions of existence but also to the strategies which people use to maintain a particular location in social space (Bourdieu, 1984, 1992, 1998). If life chances create a structural dimension analogous to *condition*, the CHART dimensions that measure handicap would appear to represent resources used in different amounts by different groups to maintain *position* or location in social space. They would appear to exist as type of *capital* upon which lifestyle groups draw in order to sustain a particular level of participation. Habits that involve using this capital further differentiate lifestyle groups from each other.

For example, persons pursuing a work-based lifestyle may have money to pay attendants to facilitate daily care activities, while those in the home-based group may not. People pursuing a home-based lifestyle may find it less necessary to have access to transportation than those who engage in school-based activities.

According to the CHART protocol, physical independence is measured by the amount of assistance one requires from others and whether those who help are paid or unpaid. Mobility is measured as the ability to have control over where and when one goes and to be able to manage the time and space dimensions of the environment beyond the body. Social integration is measured by the type and amount of social contact that a person customarily sustains. Economic self-sufficiency is measured by the level of household income (G. G. Whiteneck et al., 1992). If Bourdieu's theory is correct, each lifestyle group can be predicted to show an affinity for certain resources (physical assistance, mobility, social contact, income). The patterns of use of this capital will serve as further means for differentiating among lifestyles.

Physical independence, mobility, and social integration received separate analysis following the recommendation of Hall et al. (1998). Two-dimensional plots were used to display output. In each of the plots, one dimension represents the lifestyle group whereas the other dimension represents resources used to sustain each particular lifestyle.

Patterns of Physical Independence

Two sources of physical assistance were measured—paid assistance and unpaid assistance. The lifestyle groups were categorized by the number of hours of each type of assistance they reported receiving each day. A Burt matrix is presented in Table 20 and the weighted scores are presented in Table 21. Eigenvalues were computed for each dimension as well as the model as a whole.

Overall, the dimension measuring physical independence accounted for 52.7% of the variance within the sample; the lifestyle dimension accounted for 35.7%. When these were considered together, 88.4% of the variance within the sample could be accounted for in a two-dimensional solution. Therefore, the level of help received, whether from paid or unpaid sources, is a characteristic that assists in the differentiation of one lifestyle from another. A spatial map of these differences is presented as Figure 5.

Relative to the isolated lifestyle, home-based, work-based and school based lifestyles were less likely to use help from others in order to maintain physical independence. This is indicated by their close proximity to each other and to the conditions of having no paid or unpaid help. The isolated group was most closely associated with using more than 4 hr of unpaid help and somewhat associated with the same level of paid help. However. moderate levels of assistance (1 to 4 hr), whether from paid or unpaid sources, were not associated with any specific lifestyle group. Thus, this level of assistance appears to be less useful than higher or lower levels of assistance in distinguishing one lifestyle from another.

Table 20

Burt Matrix for Physical Independence (N = 971)

	Lifestyle				Level of paid help			Level of unpaid help		
	Home-based	School-based	Isolated	Work-based	None	1-4 hr	>4 hr	None	1-4 hr	>4 hr
Lifestyle										
Home-based	411				328	40	43	268	77	66
School-based		118			87	15	16	86	19	14
Isolated			303		137	78	88	133	61	107
Work-based				139	124	9	6	111	16	12
Level of paid help										
None	328	87	137	124	676			457	115	104
1-4 hr	40	15	78	9		142		59	33	48
>4 hr	43	16	88	6			153	81	25	47
Level of unpaid help										
None	268	86	133	111	457	59	81	598		
1-4 hr	77	19	61	16	115	33	25		173	
>4 hr	66	14	107	12	104	48	47			199

Table 21

Weighted Scores for Row and Column Variables Measuring Physical Independence

Variable	Marginal frequency	Score in dimension Physical independence	Score in dimension Lifestyle
Rows			
Paid			
None	676	.483	-.061
4 hr or less	142	-1.181	-.793
More than 4 hr	153	-1.062	1.004
Missing	5		
Unpaid			
None	598	.465	.332
4 hr or less	173	-.257	-1.523
More than 4 hr	199	-1.164	.338
Missing	6		
Columns			
Home-based	414	.399	-.594
School-based	119	.384	.310
Isolated	303	-1.136	.231
Work-based	140	.963	.980

Patterns of Mobility

Mobility is defined as a person's capacity for moving around effectively within the physical space in which social interaction takes place (WHO, 1980). The CHART measures mobility as time spent out of bed, time spent outside of one's residence, the ability to move about independently in the house, and the ability to use transportation. Three of the nine variables measured by this domain of the CHART accounted for 81% of the variance among groups. These variables were the ability to enter and exit the home independently, and the ability to use transportation. Three of the nine variables measured by this domain

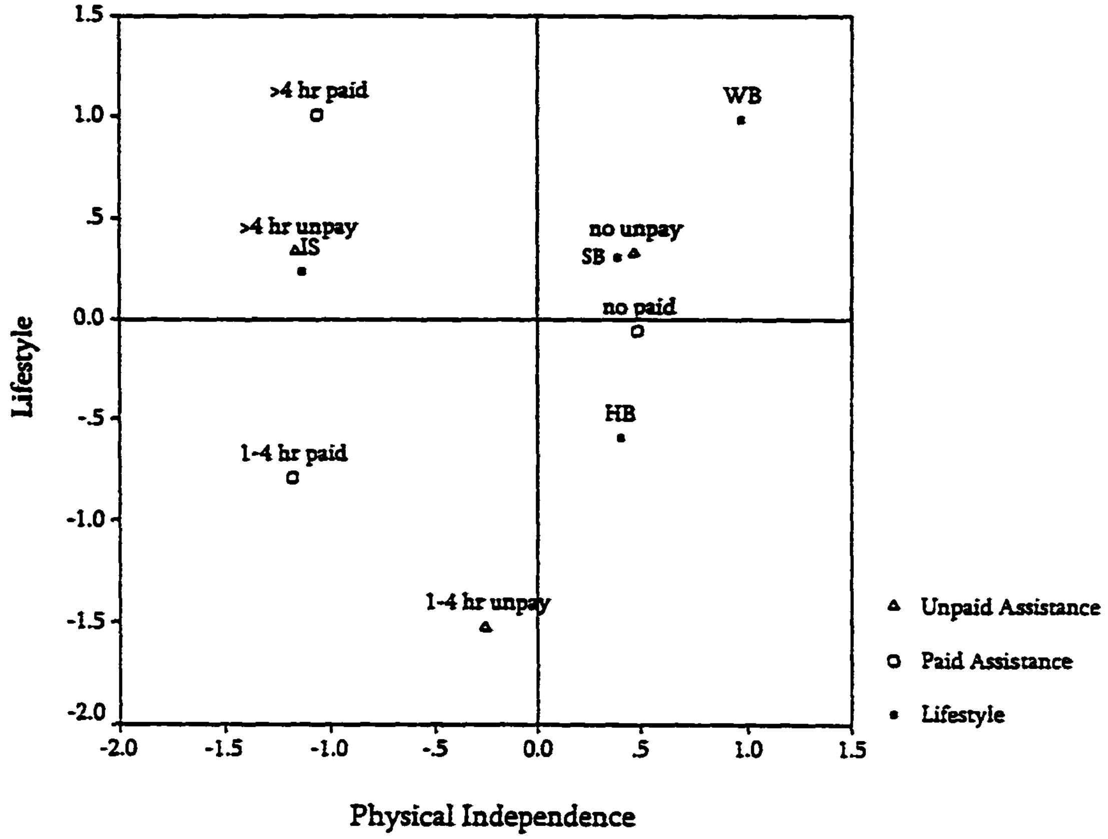

Figure 5. A spatial map of differences in physical independence among lifestyle groups.

Note. HB = home-based; SB = school-based; IS = isolated; WB = work-based; unpay = use of unpaid assistance.

of the CHART accounted for 81.1 % of the variance among groups. These variables were the ability to enter and exit the home independently, the number of days a respondent left the house each week, and the ability to use transportation independently. Results of correspondence analysis are presented in Tables 22 and 23.

A spatial map (Figure 6) shows the relative positions of the lifestyles to each other as well as to the resources each group uses to sustain mobility. The school-based lifestyle and the work-based lifestyle appear to sustain their pattern of days out of the house by

Table 22

Burt Matrix for Mobility (N = 976)

	Lifestyle				Enters and exits independently		Uses transportation independently		Days out of house per week		
	Home-based	School-based	Isolated	Work-based	Able	Unable	Able	Unable	2 or less	3 to 5	6 or 7
Lifestyle											
Home-based	414				343	71	263	151	88	151	175
School-based		119			107	12	83	36	9	31	79
Isolated			303		175	128	109	194	142	84	77
Work-based				140	130	10	123	17	2	26	112
Enters and exits independently											
Able	343	107	175	130	755		530	225	139	211	405
Unable	71	12	128	10		221	48	173	102	81	38
Uses transportation independently											
Able	263	83	109	123	530	48	578		76	157	345
Unable	151	36	194	17	225	173		398	165	135	98
Days out of house per week											
2 or less	88	9	142	2	139	102	76	165	241		
3 to 5	151	31	84	26	211	86	157	135		292	
6 or 7	175	79	77	112	405	38	345	98			443

Table 23

Weighted Scores for Row and Column Variables Measuring Mobility

Variable	Marginal frequency	Score in Dimension Mobility	Lifestyle
Rows			
Enter and exit house			
Unable	221	-1.298	-.037
Able	755	.380	.125
Days out of house per week			
6 or 7	443	.721	.458
3 to 5	292	-.182	-1.121
2 or less	241	-1.104	.516
Use transportation			
Unable	578	-.898	.007
Able	398	.618	-.010
Columns			
Home-based	414	.145	-.847
School-based	119	.645	.169
Isolated	303	-.958	.567
Work-based	140	1.098	-1.132

drawing on their relative independence in entering, exiting, and using transportation. The home-based group went out of the house fewer days a week than workers or school-based and are represented on a continuum between independence and dependence in other mobility factors.The isolated group was the least likely to leave the house and also the most likely to require assistance with entering and exiting and with transportation relative to the three other lifestyle groups. Mobility is clearly a characteristic that differentiates 3 of the 4 lifestyle groups from each other. In previous research access to the environment was an important factor in predicting life satisfaction (Richards et al., 1999).

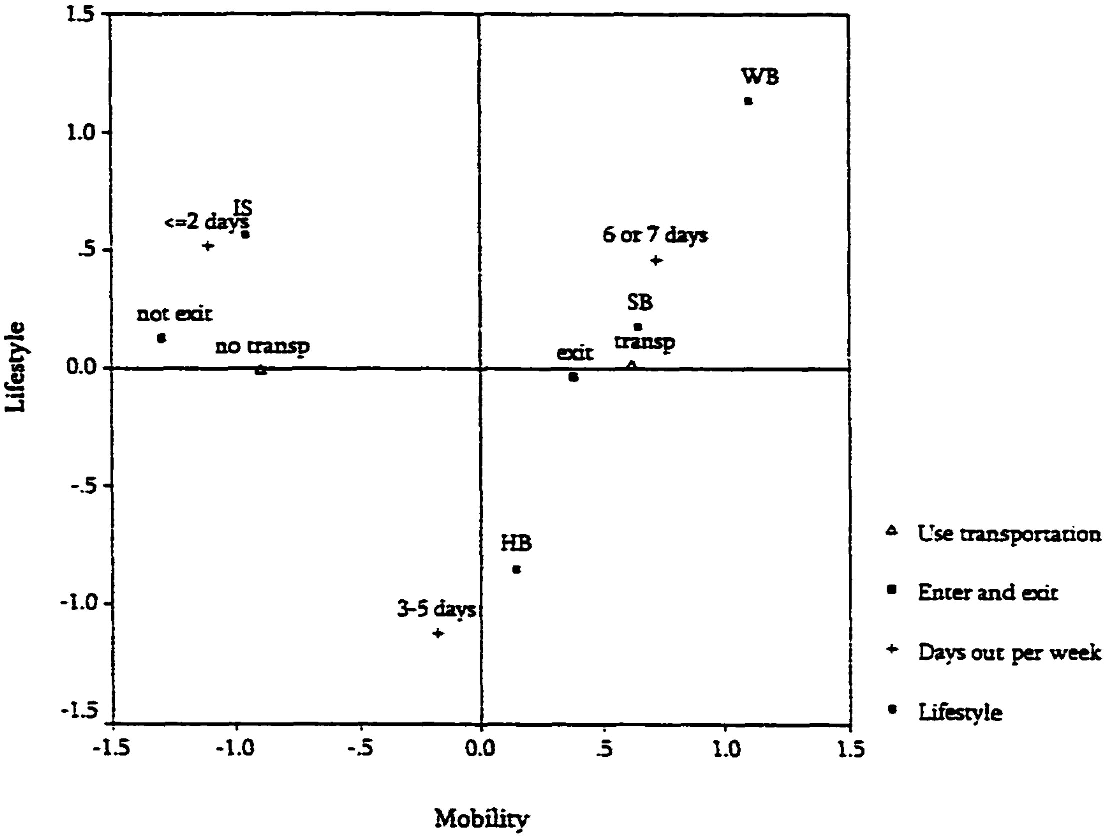

Figure 6. A spatial map of differences in mobility among lifestyle groups.

Note. HB = home-based; SB = school-based; IS = isolated; WB = work-based; exit = enter and exit the home; transp = use transportation.

Patterns of Social Integration

Social integration is defined as a person's ability to maintain customary social relationships (WHO, 1980). The CHART surveys the number of contacts a person has each month with relatives, friends, business associates, and strangers. Both the type and frequency of contact are measured. Frequency of social contacts is an indicator of the amount of social capital (Bourdieu, 1984). Social contact also provides reinforcement for individual and group identities (Giddens & Pierson, 1998). Differing levels of contact with relatives, friends, business associates, and strangers account for 67.6% of the variance found within the model. Tables 24, and 25 summarize the results of correspondence analysis. The bi-plot for social integration is presented as Figure 7.

Each lifestyle group had at least minimal contact with friends and relatives, although the number of people with whom they were in contact varied from group to group. One finding is that the work-based group was relatively less likely to be in contact with friends or relatives than the school-based and home-based groups. People who adopted a school-based lifestyle had regular contact with all except for business associates. The home-based lifestyle group had contact with friends, relatives, business associates, and strangers but tended to be in contact with fewer people when compared to the school-based group. Not surprisingly, the isolated lifestyle was associated with the lowest levels of contact with friends and relatives and had the least contact with strangers and or business associates as compared to other lifestyle groups.

Patterns of Household Income

The remaining dimension of the CHART estimates the household income of respondents. Not surprisingly, there were marked income differences among lifestyle groups. The median income reported for work-based respondents was $40,000 annually. The median income for the school-based group was $24,900. It is possible that this level of income is derived from grants obtained for attending school or, perhaps, by income earned by family members. It should be recalled that those in the school-based lifestyle group were, on average, younger than other groups and were also less likely to be married. The median household income for the home-based lifestyle group was $19,790 annually.

Table 24

Burt Matrix For Social Integration (N = 972)

	Lifestyle				Contact relatives			Contact friends			Contact strangers			Business contacts		
	Home-based	School-based	Isolated	Work-based	0 - 2	3 or 4	5 or more	0 or 1	2 to 4	5 or more	None	1 - 4	5 or more	None	1 - 6	7 or more
Lifestyle																
Home-based	412				91	88	233	50	120	242	71	101	234	190	143	78
School-based		119			13	28	78	10	23	86	9	18	91	40	39	40
Isolated			303		86	66	151	86	80	137	113	75	111	181	80	42
Work-based				138	26	31	81	9	21	109	5	23	109	16	41	83
Contact relatives																
0 to 2	91	13	86	26	216			72	61	82	68	55	92	130	54	31
3-4	88	28	66	31		213		31	66	116	44	54	113	93	73	47
5 or more	233	78	151	81			543	52	115	375	85	107	339	203	175	164
Contact friends																
0 or 1	50	10	86	9	72	61	82	155			62	49	44	110	30	15
2-4	120	23	80	21	31	66	116		244		57	77	109	114	88	41
5 or more	242	86	137	109	52	115	375			574	79	91	391	203	184	187
Contact strangers																
None	71	9	113	5	68	44	85	62	57	79	198			141	46	11
1-4	101	18	75	23	55	54	107	49	77	91		217		115	72	29
5 or more	234	91	111	109	92	113	339	77	109	391			545	165	182	198
Business contact																
None	190	40	181	16	130	93	203	110	114	203	141	115	165	427		
1-6	143	39	80	41	54	73	175	30	88	184	46	72	182		303	
7 or more	78	40	42	83	31	47	164	15	41	187	11	29	198			243

Table 25

Weighted Scores for Row and Column Variables Measuring Social Integration

Monthly contacts	Marginal frequency	Score in Dimension Lifestyle	Social Integration
Rows			
Contact with relative			
5 or more	543	-.366	.013
3-4	213	.069	-.478
0-2	216	.847	.443
Missing	4		
Business Contact			
7 or more	243	-1.041	.719
1-6	303	-.202	-.765
None	427	.715	.141
Missing	3		
Friend			
5 or more	574	-.501	.164
2-4	244	.363	-.929
0-1	155	1.281	.859
Missing	3		
Stranger			
5 or more	545	-.593	.101
1-4	217	.482	-.711
None	198	1.132	.489
Missing	16		
Columns			
Home-based	414	.005	-.636
School-based	119	-.708	-.014
Isolated	303	.782	.462
Work-based	140	-1.118	.876

Finally, the median income for the isolated group was $ 15,600. These findings suggest that level of income should be considered as a factor when measuring differences in life satisfaction among lifestyle groups.

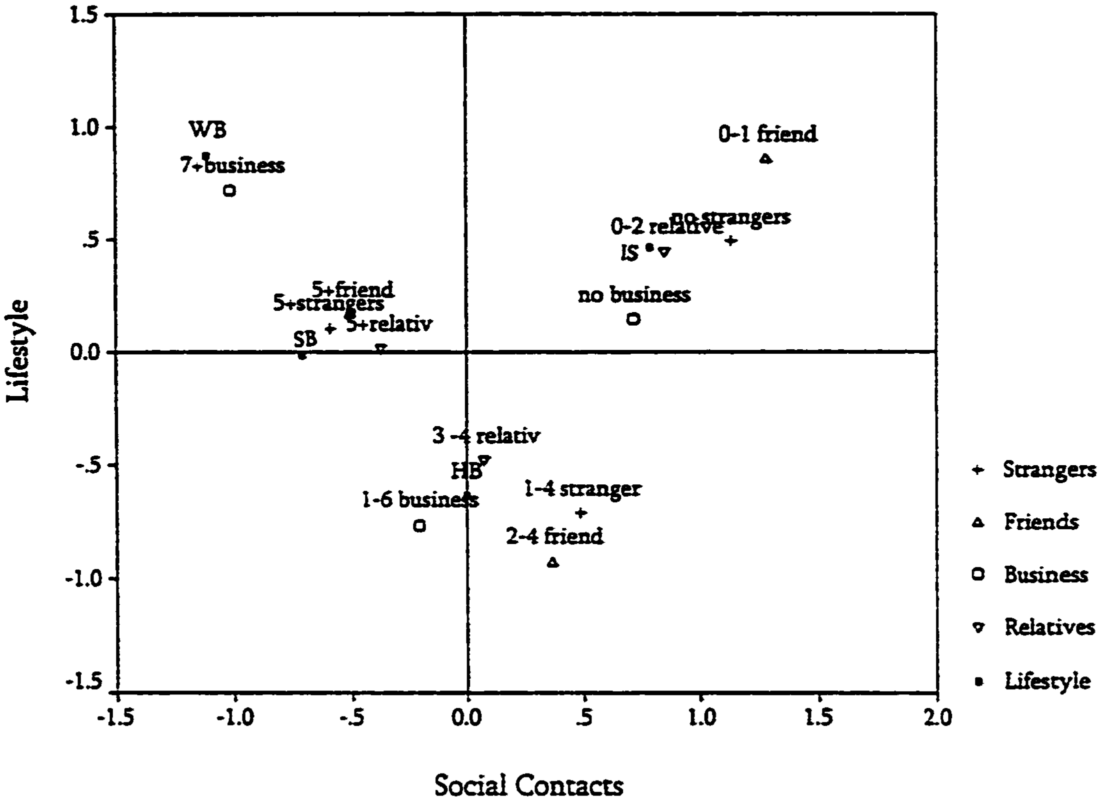

Figure 7. A spatial map of patterns of social contact among lifestyle groups.

Note. HB = home-based; SB = school-based; IS = isolated; WB = work-based.

Composite Lifestyle Profiles

Bourdieu believed that by modeling the social space that best depicts a group's relationship to other groups it was possible to identify the factors that make them into classes. In applying Bourdieu's method to the lifestyles of persons 2 years after SCI it was necessary to consider the practices of each of the lifestyle groups *in relation* to the practices and resources of each of the other groups (Bourdieu, 1998). Drawing from the results presented thus far, it is now possible to identify a composite space of conditions that differentiates each of the four lifestyle groups from one another.

The Home-Based Lifestyle

Two years after injury, 42.4% of the sample could be identified as practicing a home-based lifestyle. During an average week, they spent 17 hr in homemaking, 4 hr in home maintenance, 12 hr in recreation, and 10 hr in hobbies or self-improvement activities. A small proportion of the group were employed (3.3%), and a smaller proportion were in school (1.6%). One distinguishing feature of this lifestyle was lack of participation in volunteer work. Their median household income was $19,790. Therefore, as compared to other groups, the home-based were more likely to be Caucasian or Hispanic; more likely to have a high school level of education; less likely to have attended college prior to injury; more likely to have been employed at the time of onset; more likely to be between the ages of 28 and 36 years; less likely to use high levels of physical assistance from paid or unpaid sources; more likely to spend 2 to 4 days at home each week; more likely to maintain contact with 1-6 business associates, relatives, friends; and more likely to have 1-4 contacts with strangers each week.

The School-Based Lifestyle

Twelve percent of the sample could be identified as practicing a school-based lifestyle. During an average week, they spent 18 hr in school or school-related activities, 10 hr in recreation, and 10 hr in hobbies or self-improvement. On average, they spent equal amounts of time participating in paid work (2.7 hr) and in volunteer work (2.7 hr). They spent 11 hr in homemaking activities such as food preparation, housekeeping, and parenting but less than 1 hr in maintaining the home. Their median household income was $24,900. The lifestyle profile for this group shows that, when compared to other groups, they were more likely to be between 16 and 28 years of age; more likely to have been in school at the time of injury; unlikely to use paid or unpaid assistance for physical independence; more likely to leave the house more than 5 days a week; more likely to enter and exit without help and to use transportation; more likely to maintain varied types of social contact; more likely to have high levels of contact with friends, strangers and relatives.

The Isolated Lifestyle

Two years after injury, 31% of the sample could be identified as practicing an isolated lifestyle. The only activities that they reported with any frequency were recreation (6 hr) and self-improvement (8 hr) each week. Their median household income of $15,600 was the lowest of any of the lifestyle groups. The lifestyle profile for this group showed that, compared to other groups, they were most likely to have been unemployed or out of school when injured; more likely to be African American; more likely to be older, aged 37 year or above; most likely to use more than 4 hr of paid or unpaid assistance; less likely to use transportation independently; less likely to enter or exit the home independently, less likely to leave the house more than 2 days a week; less likely to have contact with friends or relatives; less likely to have any contact with strangers or business contacts.

The Work-Based Lifestyle

The remaining 14% of the sample could be identified as practicing a work-based lifestyle, although not all were paid workers. Seventy-eight percent engaged in paid employment. They also engaged in volunteer work (41%), and they also did work to maintain the house (94%). During an average week, they spent 28 hr in employment, 16 hr in homemaking, 9 hr in recreation, and 8 hr in self-improvement activities or hobbies. Less than 10% were in school. Their median household income was $40,000. The lifestyle profile for this group showed that, compared to other groups, they were more likely to have attended college prior to injury; most likely to be employed 2 years after injury; less likely to use help from paid or unpaid sources; more likely to enter and exit the home independently; more likely to use transportation independently; more likely to leave the house 6 or 7 days a week; more likely to have high levels of contact (7+) with business associates; and less likely than the school-based or home-based group to have frequent and varied contact with friends, relatives, and strangers.

Abled and Disabled Lifestyles

Based on these four profiles, it was also possible to make a distinction between abled and disabled lifestyles. Two years after injury, over two thirds of the sample (68.9%) were out of the house 3 days or more during the week. On average, they had resumed at least four of seven social roles measured by the CHART. They maintained social contact with friends, business associates, relatives, and strangers. In other words, they had begun to practice an abled lifestyle.

In contrast, slightly less than one third of the sample (31.0%) took part in a very narrow range of productive roles. They had social contact with relatives and friends but not with strangers or business associates. In other words, to some extent they had begun to practice a disabled lifestyle.

Lifestyle, Satisfaction, and Self-Reported Health

The link between membership in a lifestyle group and satisfaction with life was reported earlier (see Tables 11 and 12). Work-based and school-based lifestyles resulted in similar levels of life satisfaction with means of 22.74 and 21.32, respectively. The remaining lifestyle groups reported significantly lower levels of satisfaction. The means were 18.36 for the home-based group and 15.59 for the isolated group.

Because homogeneity analysis has offered a way of modeling both life chances and life choices that differentiate one group from another, it is possible to understand some to the conditions contributing to a particular position within a field of action (Bourdieu, 1977, 1990b). This method of analysis has revealed what there is about daily life practices that might lead to different levels of satisfaction.

However, the question remains whether the practices used by lifestyle groups 2 years after SCI also result in different levels of health. If they do not, it will be difficult to argue that they are, in fact, health lifestyles.

Self-reported health was measured on a 5 point scale: 1 (*excellent*), 2 (*very good*), 3 (*good*), 4 (*fair*), 5 (*poor*). In computing the average score, reverse scoring is recommended so that higher levels of health have higher scores (McDowell & Newell, 1996). When this is done, *excellent* is scored between 5 and 4.5, *very good* is scored between 4.4 and 3.5, *good* is between 3.4 and 2.1, *fair* is between 2.0 and 1.1 , and *poor* is 1.0.

Average health ratings given by respondents in each of the four lifestyles are presented in Table 26. The work-based and the education-based groups rated their health higher than the other two groups. The ratings given by the work-based lifestyle (3.83) and the school-based lifestyle (3.89) equate to being *very good* health. The mean reported by the home-based lifestyle group (3.45) is at the upper boundary of the *good* category. However, the mean of the isolated lifestyle group (2.95) was between *good* and *fair*.

Table 26

Between Subjects Differences for Self-Reported Health

Health ratings	*M*	*SD*	*SS*	*df*	*MS*	*F*
Lifestyle Group						
Home-based	3.45	1.007				
School-based	3.89	1.017				
Isolated	2.96	1.202				
Work-based	3.83	.894				
Total	3.40	1.111				
Between groups			115.24	3	38.413	34.31***
Within groups			1088.18	972	1.087	
Total			1204.42	975		

*** $p < .001$.

Oneway ANOVA was used to test significant differences among the groups, $F(3, 972) = 34.31, p < .01$. The Levene test, $F(3, 972) = 19.04$, $p < .001$, confirmed that error variances were not evenly distributed among groups. Accordingly, post hoc analysis was carried out using Dunnett's C method to examine group differences with adjusted probability values to reflect multiple comparisons and an alpha level of .001. The results are reported in Table 27.

Post hoc analysis showed statistically significant differences among all but the work-based group and the school-based group. Both lifestyles groups evaluated their health as *very good* compared to the home-based and isolated groups who evaluated their health as *good*. One interpretation of this finding is that people in the school-based and work-based lifestyles groups do not consider their degree of disability as illness. If this

Table 27

Multiple Comparisons for Self-Reported Health

	Mean Difference (*SE*)			
Lifestyle Group	Home-based	School-based	Isolated	Work-based
Home-based		.443***(.106)	-.492*** (.085)	.382*** (.090)
School-based	-.443*** (.106)		-.935***(.116)	*ns*
Isolated	.492*** (.085)	.935***(.116)		.874*** (.102)
Work-based	-.382***(.090)	*ns*	-.874*** (.102)	

*** $p > .001$

were true, they would have rejected applying Parson's ideas about the sick role to themselves. Health, in this case, would be defined by having regained a desired level of community integration. The isolated group and home-based groups rated their health as *good*, implying that respondents in these groups may still equate disability with illness.

Measuring the Effect of Lifestyle on Life Satisfaction

Oneway ANOVA had previously shown lifestyle groups could be divided by differences in the means of satisfaction with life measured by the SWLS. In order to explore this finding further, ANCOVA was carried out. Lifestyle was selected as the independent variable, level of education was chosen as the covariate and the score on the SWLS as the dependent variable. Data on the level of education were available on 909 cases. The variable was coded was coded 1 (11th grade or less), 2 (high school or General Equivalency Diploma) and 3 (attended college). The level of education was selected as a covariate for two reasons. First, the results of homogeneity analysis suggested that education is associated with lifestyle. Second, this relationship had been evaluated in previous studies (see Putzke et al., 2002).

First, the assumption of homogeneity of slopes was tested (see Table 28). These results showed no significant interaction between lifestyle and education, $F(3, 901) = 1.60$, $p = .180$, partial $\eta^2 = .005$. Thus, even when life satisfaction scores are adjusted for differences in levels of education, they can differentiate among three of the four lifestyle groups.

Table 28

Test of Between Subjects Interactions for Lifestyle and Education (N = 909)

Source	*SS*	*df*	*MS*	*F*	Partial η^2
Corrected Model	6109.765[a]	7	872.82	15.272***	.106
Intercept	23020.749	1	23020.75	402.787***	.309
Lifestyle	701.151	3	233.72	4.089**	.013
Education	10.259	1	10.26	.180	.000
Lifestyle/education	274.814	3	91.61	1.603	.005
Error	51495.498	901	57.15		
Total	374640.000	909			
Corrected total	57605.263	908			

[a] $R^2 = .106$ (adjusted $R^2 = .099$).
** $p < .01$, *** $p < .001$.

Evaluation of the main effects for each of the factors was then carried out (see Table 29). These results show a significant effect for lifestyle $F(3, 904) = 32.184, p = <.001$; the partial η^2 was .096. However, the effect of education on life satisfaction was not significant, $F(3, 901) = .180, p = .672$; the partial η^2 was .005. These results highlight the complexity of the issues involved in measuring lifestyle. Lifestyle alone had a small effect on levels of life satisfaction separate from the influence of previous education. This raises the important issue of what aspects of lifestyle really do make a difference. More follow-up will be needed to untangle the linear relationship between life chance and life choice variables in respect to the lifestyles of persons after SCI. While the strength of homoge

Table 29

Test of Main Effects of Lifestyle and Education (N = 909)

Source	*SS*	*df*	*MS*	*F*	Partial η^2
Corrected Model	5834.950[a]	7	1458.738	25.472***	.101
Intercept	31332.903	1	31332.902	547.127***	.377
Lifestyle	5529.416	3	1843.139	32.184***	.096
Education	3.626	1	3.626	.063	.000
Error	51770.313	901	57.268		
Total	374640.000	909			
Corrected Total	57605.263	908			

[a] R^2 = .101 (adjusted R^2 = .097).

*** $p < .001$.

neity analysis is its ability to suggest the interrelationship of variables that form the space of lifestyle, more complex statistical methods are needed. These types of analysis were beyond the focus of the current study.

Summary

A spatial analysis of four groups of persons with SCI, initially clustered by their patterns of activity, was used to explore conditions of existence for four lifestyles described by people who had sustained SCI. The results of cluster analysis confirmed that four well-differentiated groups had been formed. The results of correspondence analysis showed that differences between the lifestyle groups included not only the types of activities in which they participated but also life chance factors that shape options for particular types of participation. In addition, some groups were also clearly differentiated by the resources they used to support independence. Three groups, the home-based group, the school-based group, and the work-based group, showed an abled lifestyle pattern that included spending more time out of the house, relying less on the help of others, and maintained variety and frequency in social contacts. Together, they comprised over two-thirds of the study sample. Relative to them, the isolated group showed a disabled lifestyle pattern marked by lower participation in activity, greater reliance on physical assistance, less time spent out of the house, reduced contact with strangers and business associates, and lower levels of income.

Regarding satisfaction with life, the SWLS scores differentiated the three of the four groups from one another. Not surprisingly, all were neutral or slightly negative in their assessment of how satisfying their life circumstances were compared to the average expected for non disabled respondents. However, the lifestyles in which persons had regained the highest number of roles also reported higher levels of satisfaction. Preliminary analysis suggested that more abled lifestyles produce greater life satisfaction and are not affected by the level of education of the respondent. Hierarchical linear model will be needed to elucidate the relationship between the various life chance and life choice factors that constitute lifestyle.

The most abled lifestyles also were associated with more positive assessments of health. There was, however, greater than expected variability within groups, making interpretation of a direct linear relationship between lifestyle and health somewhat suspect. Further analysis of this variance through linear modeling is needed.

Cockerham et al. (2002) provided a definition of lifestyle which is useful in modeling social space after SCI. They asserted that lifestyles are formed by the utilitarian practices that lead to different health outcomes. This study demonstrates that, 2 years after the onset of SCI, it is possible to identify some of these utilitarian lifestyle practices. These practices can be measured by participation in specific social roles and are augmented by resources to support physical independence, mobility, and social integration. More importantly, lifestyle practices were shown to lead to different levels of satisfaction and self-reported health.

CHAPTER 6

DISCUSSION

In this study, the experiences of 976 persons with SCI were explored. Data available from the NSCISC consisted of survey responses collected on the second anniversary of the onset of injury. Surveys were conducted between 1995 and 2000, at which time second anniversary follow-ups were discontinued by the Model Systems.

The study used variables measured by the CHART to explore how different groups of persons experience different lifestyles 2 years after injury. The five CHART dimensions —physical independence, mobility, occupation, social integration, and economic independence—were used to model a *space of* difference within which lifestyles come into being (Bourdieu, 1984). The core of these lifestyles revolved around the enactment of adult social roles identified by the ICIDH—employee, student, homemaker, home maintainer, volunteer, recreation-participant, and self-improver. Cluster analysis permitted these roles to be reduced to four well-differentiated lifestyles. These were identified as home-based, school-based, isolated, and work-based. Homogeneity analysis indicated that enactment of these lifestyles is associated with specific life chances, including age at onset, race or ethnicity, the level of education completed prior to onset, and the extent of injury. Homogeneity analysis also indicated that lifestyle is aided by resources that support life choices. These resources include the use of paid and unpaid assistance; access to the external environment 3 days or more a week; and social contact with relatives, friends, business associates, and strangers.

Summary of Findings

This study contains the following findings linking disability and lifestyle for people 2 years after the onset of SCI. First, it is possible to explore lifestyle using existing CHART data and to uncover patterns of utilitarian practices that appear to shape the life world. Second, visualizing a space of lifestyle in a way that models the work of Pierre Bourdieu creates a space of difference in which characteristics of one group can be evaluated in relation to each other rather than in a linear or hierarchical manner. Third, four lifestyle patterns were identified; each lifestyle appears to represent a distinct way of experiencing and responding to the life-world. Fourth, six life chance variables showed some association with particular lifestyles. These factors were age at onset, race and ethnicity, current marital status, level and completeness of injury, previous history as a worker or student, and the level of education completed prior to injury. Fifth, CHART dimensions that measured the resources of physical independence, mobility, social contact, and income showed varied patterns of association with the four lifestyle groups. It was argued that these serve as capital to support the life choices of different lifestyle groups. Sixth, lifestyles that included greater mobility and higher levels of social contact resulted in greater life satisfaction. No significant differences in life satisfaction were found between the school-based lifestyle and the work-based lifestyle, but each of the other lifestyles resulted in significantly different levels of life satisfaction. Seventh, no significant differences in self-reported health were found between the school-based and the work-based lifestyle. These two lifestyles rated their health as *very good*, while the home-based and isolated lifestyles rated their health as *good*. Finally, ANCOVA indicated no significant interaction between the level of education and lifestyle in regard to the level of life satisfaction. This shows that lifestyle affects life satisfaction regardless of previous level of education.

From the beginning, this study set out to answer six questions about the relationship of lifestyle to the life-world experienced 2 years after SCI. These questions were formed to make the clearest possible link between the theory base which supports the health lifestyles perspective and the large body of literature that describes disability and handicap. Each of these questions is addressed below.

Patterns of Lifestyle

The first question posed by the study was whether patterns of lifestyle would become evident in the activities of persons 2 years after onset of SCI. The results of the study support the existence of four distinct patterns of activity, each associated with the use of specific resources. These patterns can be identified as lifestyles because they are lived as routine activities which allow the life-world to be more normal and predictable. Moreover, they create differentiated patterns through the use of time and different access to space (Giddens, 1991). People enact these lifestyles as strategic players, maximizing their options for social participation through the use of particular resources (Bourdieu, 1992). After SCI resources were used at different levels and in different combinations by different classes of players. The lifestyles developed by people after SCI are utilitarian practices leading to differing patterns of participation (Cockerham, 2000b). They also lead to measurably different levels of satisfaction and health.

By far the most prevalent lifestyle 2 years after injury, adopted by 42.4% of the sample, was the home-based lifestyle. People in this lifestyle group moved between home and community, sustaining social contact in both spaces. This is a group that has clear priorities for family roles. Although a small percentage of the group was employed (3.3%), none were engaged in any volunteer work. Nevertheless, they maintained frequent and varied contact with friends, business associates, relatives, and strangers.

Whether this lifestyle represents a permanent choice resembling semi retirement from the workforce cannot be inferred because of use of cross-sectional data. It is possible that people who are in this lifestyle group will eventually center their identities in performing the more gendered roles of housekeeping, parenting, and food preparation, thus freeing another member of the family to enter the job market. It is also possible that, 2 years after injury, the study subjects were only beginning to build strategies for increasing independence and would eventually relinquish the more home-based activities in favor of other types of work or school. What is evident is that homemaking activities made a strong contribution to this lifestyle. Persons in the home-based lifestyle participated in homemaking 17 hr a week. On average, the group rated its health as *very good.*

The lifestyle of the school-based group, comprising 12% of the sample, offered a second alternative. Time was dominated by school-related activities and augmented by recreation, self-improvement, and homemaking. Compared to other groups they were younger, between 16 and 28 years of age. They tended to have been in school at the time of injury. Relative to other groups, they had higher levels of contact with friends.

A third lifestyle, adopted by 31% of the sample, was one in which the group appeared to have withdrawn from many social roles and many important types of social contact. Although some people in this lifestyle group took part in each kind of activity except for self-improvement, recreation was the only activity in which more than 50% took part. There were more African Americans in this lifestyle group than in the others. They tended not to have been working or in school at the time of injury. People who adopted this lifestyle were more likely to use unpaid or paid help for more than 4 hr a day. They were less mobile and had fewer social contacts. They reported the lowest household income.

One may speculate that, in this lifestyle group, life options are more limited. With reduced options for finding satisfaction, one's sense of the game might be that there is "no place to go." Whatever the reason, this third lifestyle group comes closer than any of the others to identifying themselves as "sick" in the sense that Parsons proposed. The fact that scores for life satisfaction and self-reported health were lower than any other group adds credence to this explanation.

The activities of the fourth lifestyle group center around various types of work. Fourteen percent of the sample was in this category. The group had relatively high levels of participation in paid employment (78%), volunteer work (41%), and home maintenance (94%). The average group member spent 28 hr each week in paid employment. Their median income of $40,000 was the highest of any of the lifestyle groups. Relative to other groups, they reported higher levels of business contacts. However, they were less strongly associated with high contact with friends and relatives when compared to the home-based group. People who adopted this lifestyle were the most positive in their appraisal of life satisfaction. They rated their health as *very good.*

Choice and Chance in the Differentiation of Lifestyles

The second question posed by this study evaluated the importance of life choices and life chances in defining health lifestyles. The health lifestyles literature gives strong support to the assumption that people engage in health-related behaviors in response to both life choice and life chance (Abel, 1991; Cockerham, 2000a). Cockerham argued further that lifestyles are formed as people respond to the options available to them.

In the current study, the following definition of health lifestyles (adapted from Cockerham et al., 2002) was used: The health lifestyles of persons who have sustained disabling conditions are collective patterns of health-related behavior aimed at minimizing disability and maximizing social participation. Lifestyles represent choices from options available to people according to their life chances.

In more traditional applications of health lifestyles theory to behaviors such as smoking, drinking, contraception, and diet, life chances play an important role in shaping health-related choices. Intuitively, it seems obvious that life chances limit some life options. Those who were not working at the time of injury would be less likely to return to work within 2 years when compared to other groups. Similarly, those who were completing their education at the time of injury would be more likely to be doing so 2 years after. Regarding life choices, conceptualized as resources to support independence, there were clear differences among different lifestyle groups. The school-based and work-based groups were more mobile and required less physical assistance. The isolated group was more limited by their comparative lack of mobility, their reliance on physical assistance, and their lower levels of social contact.

The Influence of Choice Versus Chance

A third question posed by this study was whether choice or chance would exert a stronger influence on the nature of social participation 2 years after injury. Life chances are defined by structural conditions that influence health; life choices usually refer to voluntary efforts enacted by individuals or groups. Health lifestyles offer convincing evidence that, in the presence of good health, factors such as age, race, gender, and education exert a structuring influence on health practices (Cockerham, 2000a; Cockerham et al., 1997;

Palosuo, 2000). However, in the current study, previous level of education did not appear to influence the mean of life satisfaction reported by each lifestyle group.

Evaluating the relative influence of choice over chance in lifestyles highlights the difference between Bourdieu's method of modeling and more traditional linear approaches. For Bourdieu, "the real is relational" (1998, p. 3). That is, Bourdieu believed that there was a single field of action held in place by its inhabitants and formed by the interaction of all of the pertinent differences between them. It is easy to see why this viewpoint had not been adopted more widely in American sociology. Multivariate analysis creates models by holding constant the effect of one or more variables. Therefore, some of the questions that are of most interest to this study could not be answered by using both techniques together.

The results of this study show the power of lifestyle to construct the experience of disability. However, there is important work to be done in finding cross-cutting approaches that have the power to explain in greater detail how this happens.

Health, Life Satisfaction, and Lifestyle

The fourth question posed by the study was whether the lifestyles would result in discernable differences in health. Two separate outcome measures, satisfaction with life and self-reported health, showed that three of the four proposed lifestyle groups could be differentiated from each other. The work-based and the school-based groups showed equivalent patterns of response on both of these measures. These findings further support the assertion that patterns of participation in various social roles are an important constituent of health in people 2 years after SCI.

Bourdieu's Confirmation of Previous Findings

The fifth question posed by the study was whether patterning a study on the work of Bourdieu would confirm what is already known about disability. Through constructing a theoretical social space using the same techniques as Bourdieu would have used (1992, 1998), it was possible to confirm many of the findings of previous CHART research. G. Whiteneck et al.(1999) found that both individual demographics and neurologic characteristics were not sufficient to adequately describe different levels of social participation after SCI. They suggested that more attention be paid to "other characteristics that need identification and explication" (p. 1490). Richards et al. (1999) found that access to the environment produces higher levels of satisfaction. The fact that people in different lifestyle groups showed different patterns of access and different levels of satisfaction supports this finding. In a more recent study, Putzke et al. (2002) found correlations between the education completed, gender, race and being a worker or a student at the time of injury. In the current study, the gender effect may have been masked by the significantly higher proportion of females in the study group. However, with the exception of gender, the influence of each of the remaining factors is strongly indicated.

Bourdieu's Contribution to Disability Research

The most important theoretical contribution that Bourdieu (1997, 1984, 1990b, 1998) makes to disability research does not stem merely from his concept of habitus but from his understanding of social space as a field of power. Bourdieu believed that, within this field, classes are empowered to establish and maintain a life space that they determine. If Bourdieu is correct, definitions of handicap are created as much by the actions of persons with disabilities themselves as by definitions imposed by medicine. The current study has adopted the perspective that people with disabilities are strategic actors who appropriate resources to secure a particular position in social space. Recent work exploring community integration (Dijkers, 1999; Dijkers et al., 2000) appears to indicate that a few contributors to disability research are pursuing a similar line of reasoning.

This current study also shows that a melding of agendas in health lifestyles disability research is certainly possible. Key concepts in the health lifestyles arena can be readily translated into concepts identified as social outcomes in the disability literature. The health lifestyles perspective comes with a well-established body of literature and has tools and concepts ready for use. Opportunities to apply a health lifestyles perspective to study disability will increase as WHO introduces new research initiatives concurrent with the release of the ICF. The focus of the ICF is not on classifying individuals but on describing "situations within an array of health and health-related domains" (WHO, 2001, p. 8). In this new paradigm, the use of mapping techniques to evaluate the interplay of social structures and environmental structures will be particularly useful.

Limitations of the Study

The findings of the study support previous studies using the CHART. However, the results can be generalized only to people with SCI who were treated through the Model Systems of Care. This is estimated to be about 13% of the new cases of SCI each year (NSCISC, 2001). Follow-up methods used by the Model Systems tend to introduce a bias in favor of respondents who are Caucasian, more highly-educated, and employed (Hall et al., 1998). In addition, the restriction that each respondent serve as his or her own informant biased the sample toward females and toward Caucasians. This bias was found acceptable because it offered a trade-off between increased generalizability of findings and the use of information on occupation and social contact that was presumably more accurate.

The use of cross-sectional data also limited study findings. Interviews represent one point in time—the second anniversary of onset—but no claim can be made that each of the respondents was in the same emotional or social stage of adjustment. In addition, interviews were done between 1995 and 2000, between 5 to 10 years after the passage of the ADA. There is no way to gauge what public perception or individual perceptions of optimal social participation were at that time or how they might have changed since then.

The decision to study only four cluster types is also a limitation. It is quite possible that there are more types, or perhaps fewer. However, the fact that the groups were differentiated so clearly from one another leaves no doubt that a four-cluster solution is defensible. Specification of a finite number of homogeneous groups as a first step was necessary to apply Bourdieu's methods for construction of social space.

No single typology can account for the innate variations in human behavior. In many respects, these lifestyles represent "ideal types" similar to those found in the work of Weber (1922/ 1946). No assertion is made that these four lifestyle groups exist except in relation to each other (Bourdieu, 1984, 1985). The types of lifestyles proposed are not intended as invariate classifications to separate the advantaged from the disadvantaged. The disabled have suffered for too long the consequences of such labeling (Goffman, 1961; Zola, 1982, 1993). No assertion is made that any personal or financial resources should be allocated to, or withdrawn from, a particular group of persons based on lifestyle type. Such an outcome would be a regrettable consequence of this study and would be entirely the opposite of what was intended when the study was undertaken.

Finally, correspondence analysis is a variation of chi-square analysis. Although it is a useful exploratory technique, it lacks the ability to test hypotheses about data. The nearly exclusive use of cluster analysis and correspondence analysis is a limitation of the current study. The choice, however, was driven by Bourdieu's strong preference for this methodology to depict the dimensions of social space. Use of these techniques permitted the modeling of a space in which differences in lifestyles that structure the lived experience of disability could be displayed and better understood.

Directions for Future Research

Because the Model Systems no longer carries out second-anniversary follow-up visits, it will not be possible to replicate the study. However, it is recommended that researchers use the same design to study 5-year anniversary contacts or ones further from the date of onset. Such studies could show whether the suggested typologies are transient or durable and would strengthen the case for the existence of differentiated lifestyles. Through longitudinal studies it might be possible to identify whether interventions aimed at mobility or physical independence move groups from one position to another within social space. Studies of this kind will most surely be welcome in the new research environment created by the publication of the ICF.

Second, the study showed that definitions and concepts derived from the health lifestyles literature translate nicely to topics of interest in disability research. There is ample opportunity to apply these methods to other diagnostic groups such as the people with head injuries, burns or Parkinson's disease. Such an agenda will strengthen health lifestyles research by showing that its perspective has universal application. Joining these two research traditions may also offer a theoretical grounding to rehabilitation research whose emphasis on outcomes has sometimes been criticized for being overly empirical.

Practical Applications

Lifestyles always involve practices that result in identifiable patterns of consumption (Veblen, 1899/1994). With this in mind, each lifestyle position defines a specific market segment of persons with SCI. Each segment has its particular needs, goals and strategies for achieving those goals.

Conceiving different groups of people with disabilities as distinct segments of a target audience makes it easier to see that they may need different interventions (Slater & Flora, 1991). People living in rural areas, for example, may be able to move from an isolated lifestyle to a home-based or school-based lifestyle if accessible transportation is made available. People who have adopted a home-based lifestyle may be able to gain employment if they are offered the technology and the skills for telecommuting. The first step in meeting the needs of people with SCI is to find ways to form them into homogeneous groups. The next step is to provide the resources necessary to sustain a particular level of social participation.

Swartz (2002) pointed out that the *habitus* of different groups embodies the aspirations and expectations for success of people in particular positions within social hierarchies. From a lifestyles perspective, conditions that promote disability are situated in real time and real space. It is within time and space that people embody different lifestyle approaches.

Until recently, this social dimension of disability has been overlooked by the medical model of rehabilitation. However, the contribution of social conditions to health is central to the health lifestyles perspective. When it is possible to accept that there are many possible ways of being disabled and that these ways are constructed as much by the disabled themselves as by rehabilitation professionals, people with disabilities will be recognized as the consumers that they really are. Thus, recognizing the legitimacy of lifestyles for persons with disabilities offers one more way of encouraging full inclusion and universal social participation.

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APPENDIX

INSTITUTIONAL REVIEW BOARD APPROVAL FORM

UAB THE UNIVERSITY OF
ALABAMA AT BIRMINGHAM
Institutional Review Board for Human Use

Form 4: IRB Approval Form
Identification and Certification of Research
Projects Involving Human Subjects

The Institutional Review Board for Human Use (IRB) has an approved Multiple Project Assurance with the Department of Health and Human Services and is in compliance with 21 CFR Parts 50 and 56 and ICH GCP Guidelines. The Assurance became effective on January 1, 1999 and the approval period is for five years. The Assurance number is M-1149.

Principal Investigator:	THIBODAUX, LOUISE R.
Co-Investigator(s):	
Protocol Number:	E001110004
Protocol Title:	*(Exemption #4) Patterns of Social Participation Two Years Following Spinal Cord Injury*

The above project was reviewed on 11/17/00. The review was conducted in accordance with UAB's Assurance of Compliance approved by the Department of Health and Human Services. This project qualifies as an exemption as defined in 45CF46.101, paragraph 4.

Date IRB Approval Issued: 11/17/00 review.

IRB Approval Date: 11/17/00

Date IRB Approval Issued: 11/17/00

Sheila Moore

Sheila Moore
Director, Office of the Institutional Review
Board for Human Use (IRB)

Investigators please note:

IRB approval is given for one year unless otherwise noted. For projects subject to annual review research activities may not continue past the one year anniversary of the IRB approval date.

Any modifications in the study methodology, protocol and/or consent form must be submitted for review and approval to the IRB prior to implementation.

Adverse Events and/or unanticipated risks to subjects or others at UAB or other participating institutions must be reported promptly to the IRB.

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GRADUATE SCHOOL
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DISSERTATION APPROVAL FORM
DOCTOR OF PHILOSOPHY

Name of Candidate Louise R. Thibodaux

Graduate Program Medical Sociology

Title of Dissertation A Social Space Approach to the Health Lifestyles of Persons After Spinal Cord Injury

I certify that I have read this document and examined the student regarding its content. In my opinion, this dissertation conforms to acceptable standards of scholarly presentation and is adequate in scope and quality, and the attainments of this student are such that she may be recommended for the degree of Doctor of Philosophy.

Dissertation Committee:

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Date 2/5/2003