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Wheelchair Selection: Social Perspectives and Their Potential Impact on the Disabled

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WHEELCHAIR SELECTION: SOCIAL PERSPECTIVES AND THEIR POTENTIAL IMPACT ON THE DISABLED

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WHEELCHAIR SELECTION: SOCIAL PERSPECTIVES AND THEIR POTENTIAL IMPACT ON THE DISABLED

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The purpose of this study was to examine the physical and social factors associated with wheelchair selection. The study was carried out to test the viewpoint that social factors have a greater impact than physical factors on which type of wheelchair (power or manual) patients choose. A questionnaire was administered in the summer of 2004 to 200 members of a veteran's organization in the North-central Region of the United States. The sample consisted of 52 respondents. The results of this study suggest that a high correlation exists between the level of injury the respondents have and their wheelchair selection, but no significant difference was found for the number of

years the respondent was using a wheelchair and the wheelchair selected. In social terms the respondents were found to select wheelchairs that were similar to those of their friends who were also in wheelchairs. Looking at the person(s) who helped the respondents select their wheelchair, no correlation was found for wheelchair type selected and the individuals who aided in that selection. Independence with a particular wheelchair type, whether power or manual, was found to be a significant factor for the respondents. Although the public response is more favorable toward a manual-wheelchair user than to a power-wheelchair user, it was not found to be a significant factor in individual wheelchair selection.

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CHAPTER I

INTRODUCTION

The interactions of the general public and the wheelchair-dependent individuals have a great impact on the lives of both groups. How we have come to interact with each other has, of course, changed through the years. Yet, change is still in the air with the enactment of new laws protecting the disabled over the last decade. There has been an increase in medical technology that has saved and even prolonged the lives of many individuals who have suffered a spinal-cord injury (SCI). These patients can now expect a longer more productive life containing constant interaction with the nondisabled population.

I have come to learn first hand of the traumatic effects of living with a wheelchair. My oldest brother has been confined to a manual wheelchair for thirty-two years as a result of a spinal-cord injury he received in a motor-vehicle accident. My third oldest sibling has been in a power-type wheelchair for the last three years due to an

undiagnosed neurological disorder. The interaction between the two and the reaction of the general public to them has been a source of questions for me. I hope this study will answer some of these questions for me as well as other people interested in the lives of wheelchair-dependent individuals.

An element of the life-course theory is that each individual experiences disability sometime in his or her life (Giele and Elder 1998). The broken bone that has to be in a cast for six weeks or the sprained ankle that puts us on crutches are examples of disabilities that we encounter through our life experience. As nondisabled people, we rarely notice the sidewalk curbs that have been modified with a ramp or the drinking fountain that has been lowered to accommodate those in wheelchairs. Yet, even while we live with our small disabilities, there are those around us that have a lifetime of struggle to overcome challenges living in a wheelchair.

Current estimates suggest that 250,000-400,000 individuals are now living with spinal-cord injury (National Institute of Disability… 1996). While we live in a country that makes accommodations to the physical surroundings, we rarely are privy to the daily struggle of the wheelchair-dependent individual. A wheelchair is as

important to the spinal-cord-injury patient as good fitting shoes are to the nondisabled. A bad fit can cause a host of problems that encompass most daily functions.

The public distinguishes the disabled by the equipment they use, and the disabled are placed in different social categories according to that equipment. An example of how the disabled are distinguished is Mike, who has a manual wheelchair, going out to a restaurant with a friend that has a power wheelchair. Mike will most often be the person who is engaged in conversation with the host or hostess about the table selection. The person in the power chair has been placed in a different social category from Mike in the manual chair. Mike in this case is more socially homogenous to the host or hostess than is his dinner companion in the power chair. Erving Goffman (1963) studied disabilities, and through his theory we can perceive that a verbal exchange is easier for the restaurant employee with someone in a manual wheelchair than someone in a power chair because the disabled in the power wheelchairs are apparently separated further socially than the disabled in the manual wheelchairs.

George Herbert Mead (1934) developed the concept of the generalized other, which he defined as the abstract group of people with whom one identifies. The wheelchair

users are not in the generalized group because they are in the minority, with a clear visual difference from the rest of society. The wheelchair keeps the disabled from integrating into mainstream social situations.

Charles Horton Cooley in 1902 developed the "looking glass self" concept that defines self as based on other people's reactions to us. Cooley's 1909 work involved primary groups, which are described as groups in which individuals develop into a social being. In the case of the spinal-cord-injury patients, it is clear that the primary group that they once belonged to is no longer their primary group. The social self that has been developed must change to accommodate the reactions of the society of which they must be a part. Spinal-cord-injury patients are now members of the disabled group with the stigma of being disabled. They are no longer members of the group with whom they have identified their social being. Not only are the wheelchair users set apart from their primary social group, they now must identify with a group they have previously socially rejected (Cahill, Spencer, and Eggleston 1995).

Our society revolves around youth, beauty, and physical perfection. We strive for these attributes in ourselves and in those around us. The segment of the total

population that is confined to a wheelchair also has these same attributes. There is a stigma attached to physical disabilities, and the stigma that can be present could cause physically disabled people to select wheelchairs for their compatibility with society, not for the utility of the chair itself. This research will investigate whether wheelchair-dependent individuals will select a manual chair and live with the complications that arise rather than choose a power chair that sets them even further apart from the society around them. I will survey wheelchair-dependent individuals to determine the personal criteria in their wheelchair selection and examine the social and physical factors that these choices produce.

CHAPTER II

THEORETICAL PERSPECTIVE

> It was a young kid...in the men's department. He saw me coming. He starts vigorously folding shirts that didn't need folding just so he wouldn't have to wait on me. He took a shirt, he burst it, and he'd fold it up again...So I just sort of stayed in the area, but after a while it was obvious that he didn't want to approach me (Eggleston 1995).

All users of wheelchairs know that, when they are in a public place, they are noticed by everyone but acknowledged by no one (Cahill and Eggleston 1995). When shopping in stores or eating at restaurants, wheelchair users find that often they are in need of assistance but are ignored by the very employees whose duty it is to perform such tasks. The social stigmas that are assigned to disabled individuals separate them from the employees as well as the rest of society. This separation not only hampers the day-to-day tasks that are required of the disabled but also leaves a void in society as a whole from the failure to interact with all of its citizens.

George Herbert Mead (1934) developed the concept of the generalized other, which he defined as an abstract group of people whom one identifies. The wheelchair user is

not a part of the generalized other for the disabled population. The wheelchair becomes something foreign, keeping the disabled from integrating into the social situation. In 1902 Charles Horton Cooley developed the concept of the "looking glass self," which he defined as self based on other people's reaction (Cooley 1902, p. 184). The wheelchair users may then have a distorted sense of self because of stigma, acquired from others' reactions to them and the wheelchairs. Another important aspect of Cooley's work is with the primary group, which he describes as "a group within which the individual grows into a social being" (Cooley 1909). It is within the primary group that the "looking glass self" surfaces and the individual learns to become a productive member of society.

Primary Groups

What the nondisabled perceives about the wheelchair user has an impact on the handicapped's sense of self. When the disabled are shunned from social interaction, the ability to be productive members of society is lost. In the case of a spinal-cord injury, the newly disabled will have an even greater distortion of self because they are looking at themselves as they always did when nondisabled. When the primary group reacts to them differently, the "looking-glass self" then makes an adjustment to how the

handicapped see themselves. This adjustment extends to the selection of their wheelchairs. To become socially homogenous with the group with whom they have identified is an important consideration when choosing the type of wheelchair they will use (Cooper, Boninger, and Robertson 1998). Human nature defined for my purpose is the psychological and social qualities that characterize humankind, especially in contrast with other living things. This human nature is a trait of the primary group, not an attribute of a separate individual, and to belong to the primary group the individual strives for homogeneity with the group (Cooley 1909).

Stigma

Erving Goffman's (1963) look at stigma and the social implications that arise from it offers a look into how society interacts with the disabled. When the disabled and the nondisabled members of society interact and attempt to converse, the stigma interferes with communication. The wheelchair becomes the boundary that must be crossed for social interaction to take place.

> Uncertainty of status for the disabled person obtains over a wide range of social interactions to that of employment. The blind, the ill, the crippled can never be sure what the attitude of a new acquaintance will be, whether it will be rejective or accepting, until the contact has been made. (Goffman 1963, p. 13)

When the handicapped are faced with lack of knowledge of how they will be accepted during the initial interaction, they learn from that experience and carry it with them to the selection of the wheelchair that they will use for the rest of their lives. The disabled strive to become as similar as possible to the society within which they live. Initial reactions from their friends and family after the episode that has confined them to a wheelchair may have more bearing on their wheelchair selection than the physical impairment that is not yet faced. When the associates and family of the patient first begin their encounter with the new world of the disabled, the families and associates are not equipped for the dramatic changes to their own lives or to the life of their loved one who has joined the ranks of the disabled.

An awareness of inferiority takes shape in the consciousness of the handicapped, and with the inferiority anxiety arises with the interactions that surely will take place with other members of society. "I am inferior. Therefore people will dislike me and I cannot be secure with them" (Perry, Gawel, and Gibbon 1956, p. 145).

Life Course

At the core of all life-course theories is the dynamic

exchange between individuals and their environments. In the past, disability studies have placed the individual into his or her cultural context. This cultural context is also the strength of the life-course theory. While ideas about cultural context and dynamic exchange between individuals and their environment have been used independently, in 1991 Albrecht and Levy called for disability to be studied as a part of the life-course theory. Disability affects the majority of all individuals at some point in their lives, and any life can be examined through the interplay of historical patterns, social relationships, individual development, and situational control (Giele and Elder 1998).

While we see that the wheelchair sets the disabled apart from the society with which they have identified, we have also come to the realization that a stigma is now placed on them as well. As discussed by Cooper et al. in 1998, the primary group changes for the disabled individuals when they become disabled. They move from a group that has little identity with disabled but have faced some of the circumstances that the handicapped face in their daily lives. It is through a combination of these three theories that I will look at the factors relating to wheelchair selection.

Although the idea of stigma shows us how the wheelchair user becomes separated from the nondisabled population, the life-course theory demonstrates that we all have a disability at some point in our lives and should be somewhat sensitized to those disabilities that each of us may experience. The primary groups in which the disabled discover their social selves change when they become disabled. The disabled must learn to become members of new primary groups and learn new social selves.

CHAPTER III

LITERATURE REVIEW

The physically disabled, specifically those with spinal-cord injuries (SCI), have been studied from a vast array of angles. Each year the number of new spinal-cord injuries is estimated to be 7,800-10,000 in the United States alone (National Spinal Cord… 1996, para. 3). Prior to World War II most people who sustained a SCI died within weeks of their injury due to urinary dysfunction, respiratory infections, or bedsores (National Institute of… 2003, para. 11). With the development of modern antibiotics, modern medical care of the SCI patient has progressed so that many patients now have a lifespan approaching that of a nondisabled individual (National Institute of… 2003).

Today over 85 percent of SCI patients who survive the first 24 hours are still alive ten years later (National Institute of… 2003, para. 15). Current estimates of 250,000-400,000 individuals are now living in the United States with a spinal-cord injury or spinal dysfunction, and over 11 million people living in America have some physical

disability (United States Census… 2000, p. 1). The medical community has been in the forefront of SCI research studies that have taken place over the last fifty years. At this time there are no definitive criteria or standards written for wheelchair selection. Many prescriptions are written on the basis of injury classification, not on the individual abilities of the patients. With the growth of individual centers and institutes developed especially for the study of spinal-cord injuries and neurological dysfunctions, studies have expanded to include not just the medical aspect of SCI but the quality of daily life for those patients (Office of Special… 2002).

Along with the medical developments the implementation of the Americans with Disabilities Act (ADA) prompted many public and private institutions to learn the basics of these renovations required to fulfill the newly enacted law. There has even been the creation of government offices specifically for technical assistance with the ADA. A "new paradigm of disability" (Office of Special… 2002, p. 4) maintains that disability is the result of an interaction between characteristics of the individual and those of the natural,

> built, communication …, cultural, and social environments. Personal characteristics as well as

> environmental ones, may be either enabling or disabling (Office of Special… 2002, p. 4)

For the purposes of this study, my focus will be confined to those physical disabilities associated with spinal-cord injury that result in-long term use of a wheelchair.

Demographics

The demographic factors relating to wheelchair selection in spinal-cord-injury patients include marital status, age, and the neurological category. The National Spinal Cord Injury Association Resource Center has statistics available; however on page two of its 1996 Fact Sheet #2: Spinal Cord Injury Statistics, it indicates that the numbers they release "represent significant underreporting." The information about marital status five years post injury shows that 88 percent of the patients who were single remained single after the injury, while 81 percent who were married were still married after the injury (National Spinal Cord… 1996, p. 2).

The average age of the patients at the time of injury was 34.4 years with a median age at injury of 26 years (National Spinal Cord Injury… 2000, p. 2). The modal age at the time of injury was 19. Motor vehicle accidents account for the majority of injuries (44%), acts of violence (24%), falls (22%), sports injuries (8%), and all

other reasons for injuries (2%)(National Spinal Cord Injury… 2000, p. 2). The same research shows that falls surpassed motor vehicle accidents as the leading cause of injury after age 45, while acts of violence and sports injuries are less frequent as age increases. In the last four years acts of violence have overtaken falls as the second most common source of spinal-cord injury, possibly due to the increased occurrence of gunshot wounds nationwide.

The two most frequently used categories of neurological injury are paraplegia (two limbs, most commonly the legs, affected) and tetraplegia, which was formerly called quadriplegia (four limbs affected)(National Spinal Cord… 2000).

The injury demographics of the SCI patient may have a bearing on the selection of wheelchairs, and I used statistical analysis to determine if there are long-term effects associated with the type of wheelchair selected. There may be a pattern associated with the wheelchair selected and the injury category of the patient. A tetraplegic patient may be automatically given a power wheelchair and a paraplegic patient given a manual wheelchair--although I have found no standards that are used.

Physical Effects of Wheelchair Use

Rotor- cuff disorders (RCD) are one of the most common complications linked with long-term, manual-wheelchair use (Sinnott, Milburn, and McNaughton 2000, pp. 748-49). The issues of RCD become more apparent because of the longer survival rate of spinal-cord-injury patients and the issues of an aging population of which wheelchair-dependent individuals are a part (Kittel, Di Marco, and Stewart 2002, p. 107).

The increased stress on the upper extremities and the constant repetitious movement of the shoulder area cause damage that often involves surgery and long-term physical therapy (Cooper et al. 1998). Those patients who have already been involved in intensive medical care are now likely to face decades of living with shoulder pain and reduced mobility in addition to the decreased level of physical function already present. Independent living is always the primary goal of patients who have been confined to a wheelchair, and the added RCD diagnosis prevents many from fulfilling this goal.

Maneuvering the wheelchair up curbs and slopes as well as transfers in and out of wheelchairs appear to lead to a high level of mechanical strain in the shoulders of the patients confined to wheelchairs (Halverson and Belknap

1994, p. 1). The lighter-weight wheelchair that has become popular in the last twenty years has decreased the amount of strain but has not completely eliminated the problem. Other factors in the basic design of wheelchairs must be taken into consideration as a means to reduce injury, with a greater emphasis placed on long-term usage for the patient (Halverson and Belknap 1994, p. 2).

Another area of growing concern is the increase in cardiovascular disease. A study done by the Institute for Fundamental and Clinical Human Movement Sciences concluded that wheelchair-dependent individuals who get little or no exercise increase their total plasma cholesterol, triglycerides, and high-density lipoprotein (Dallmeijer, Van der Woulde, Kamp, and Hollander 1999, p. 96). The results showed an increase in coronary heart disease, and at the end of the two-year post-injury there was a decrease in physical capacity. The study concluded that improving the physical capacity or being physically active could improve the lipid and lipoprotein profiles. A power wheelchair further limits the physical demands of the SCI patient and increases the risk factors for cardiovascular diseases (Dallmeijer et al. 1999).

Society's Reaction to Wheelchair Use

The American attitude toward persons with disabilities has changed dramatically since the 1930s. During those years President Franklin D. Roosevelt (FDR) had attempted to conceal his illness and subsequent wheelchair use from the American public. "During FDR's era, it wasn't the trend to unmask, what were considered to be, vulnerabilities" (Gallagher 1985, p. 40,). America was a country of contradictory positions toward the handicapped and their place in society. FDR was the only President to be re-elected three times, yet the era of "ugly laws" still prevailed. In Chicago the so-called "ugly laws" stated that

> No person who is diseased, maimed, mutilated, or deformed so as to be an "unsightly or disgusting object himself [sic] to public view" or improper person to be allowed in or on the public ways or other public places in this city are banned from going out in public. (Chicago Municipal Ordinance… 1911)

Even though it was repealed in 1974, how could such laws exist? Laws such as these are an indicator of why FDR spent so much time and energy to conceal his own physical disability.

Erving Goffman (1963) introduced the concept of stigma into the study of social life, and it has been the standard designation for those with physical disabilities since that

time. The stigma of a physical disability becomes even greater with the addition of a wheelchair. There is also the trend to ignore the persons in the wheelchairs, making them nonpersons with whom society does not have to interact. The nonperson treatment of a wheelchair user involves acting as if another person were not there at all. The personal experience of wheelchair users who encounter this treatment in public places is somewhat common (Murphy, Scheer, Murphy, and Mack 1988).

If the addition of a wheelchair (manual or power) further limits our ability to interact socially with the disabled, then we fail to integrate totally the wheelchair-dependent disabled into our society. The ideal of total acceptance in any social situation of the wheelchair-dependent is closer than it was in the 1930s but still far from being achieved. We have shifted from an era of placing the disabled out of sight to a new era of the physically disabled becoming productive members of our society.

CHAPTER IV

RESEARCH METHODS

In attempting to discover the different aspects of wheelchair selection I have reviewed the information presented in the literature previously written and have examined a number of theories that would explain why some disabled individuals might select manual wheelchairs over power wheelchairs and vice versa. Some, however, select both. Although these theories and written works contain a number of insights, I have surveyed (Appendix A) the members who have full standing in the North Central Chapter of the Paralyzed Veterans of America (NCCPVA) to gain further knowledge. The criteria for full-standing members are having served in the armed forces of the United States and having paralysis in at least one limb. The goal of this study is to examine the factors that determine wheelchair selection. The group selected to complete the survey contains different wheelchair-dependent classifications.

Hypotheses

Based on the literature review and theoretical explanations, the hypothesis to be tested is as follows: social factors have a greater influence in wheelchair selection of the disabled than do physical factors. A further look into the various factors grouped together makes a better representation of the reasoning behind wheelchair selection and can be done with four sub-hypotheses: physical factors have no significant influence on wheelchair selection; logistic factors of daily living have no significant influence on wheelchair selection; personal wheelchair selection criteria have no significant influence on wheelchair selection; and collective factors have a significant influence on wheelchair selection.

Sample Design

I have administered a survey to NCCPVA members using the suggested Human Subjects Review Board guidelines insuring strictest confidentially at all times. This study was presented to the Human Subjects Review Board at Western Kentucky University, and approval was granted before the study commenced. Included with the survey was an informed-consent document (Appendix B) for the respondents to read. The informed-consent document contained a phone number for the Paralyzed Veteran's Association Service Officer in case

any of the respondents experienced mental stress associated with the completion of the survey instrument.

The NCCPVA mailed out 200 surveys to the population targeted for this survey, and none were returned for addressing errors. Of the 200 mailed 49 were completed and returned in postage-paid envelopes. After the potential respondents had two weeks to respond, a follow-up postcard was mailed to all of the respondents; an additional three surveys were returned for a total of 52. While this number has traditionally reflected a potential statistical bias, recent research has concluded that low return rates in surveys yield "very few significant differences" in the final statistical analysis (Keeter, Miller, Kohut, Groves, and Presser 2000, p. 147). The results of this research, however must be viewed cautiously due to the low cell numbers in the statistical analysis.

Questionnaire

The source of the data for analysis was a survey instrument in the form of a self-administered questionnaire, which included a total of 48 items. A pretest was done using these questions with five individuals who were not part of the target population, for the purposes of determining the clarity of the questions. A majority of the questions were closed-ended.

Approximately one fourth of the items were questions relating to demographic factors that may have an influence on wheelchair selection. The number of males completing the survey totaled 46 (92%), and females totaled 4 (8%). Of those questions in the survey containing closed-ended questions, 25 percent of the answer selections were based on the Likert scale.

Dependent Variable

The dependent variable in this study is the wheelchair type selected by the participant. Because there are a variety of selections, I will focus on the two most common; manual and power wheelchairs. Scooters, which are powered by a battery and have three or four wheels, will be placed in the power wheelchair category. Manual-assist chairs have the ability to aid the user only when the torque on the wheels reaches a preset point. They will be grouped with manual wheelchairs as well as sports-type chairs that have lower backs and wheels set at an angle for tennis, basketball, and other types of sports. For practical purposes these two types of chairs look the same to the general public whose perceived reaction I have been interested in documenting from the perspective of the disabled. There are a number of respondents who have

indicated they use both types of wheelchairs, and for this reason a "both" category has been added.

Independent Variables

The independent variables cover the reasoning behind wheelchair selection. These variables encompass economic considerations and physical ability of the respondent such as the level of injury and the length of time in the wheelchair, but I am interested in the social reasoning behind the selections. The collective reasoning factors will include perceptions of wheelchair use of family, friends, caregivers, and the public with whom the respondent interacts every day. Also included is how the respondents perceived that their particular wheelchair helped them to maintain independence.

Analysis

The data from the survey were coded, and an analysis with all the independent variables was run on The Statistical Package for the Social Sciences (2000) program to determine the factors that most influence the selection of a wheelchair. I have used both chi square and percentage statistics to ascertain the effects of the independent variables on the dependent variables (manual, power, or both wheelchair selections). The use of chi square and descriptive statistics provide for making

inferences about the relationship between the two variable types in the population that the observations represent.

The independent variables considered were grouped into four categories of physical factors, wheelchair selection criteria, logistics of daily living factors, and collective social factors. The physical factors studied were the disability classification and the length of time the respondent was confined to a wheelchair. Wheelchair selection factors include the people who helped the respondents select their wheelchairs as well as transportation issues involving whether the respondents have or had access to a wheelchair lift. Daily living logistic factors studied were the respondents' marital status and living arrangements such as whether they lived alone or with family members or paid caregivers or lived in an institution. A further consideration was given to the respondent's income and current wheelchair satisfaction. The collective social factors consisted of the types of wheelchairs the respondents' friends' use, the existence of independence and type of wheelchair used by the respondents, and factors about the public response to their wheelchairs.

Because I did not personally have access to the envelopes in which the surveys were returned, I could not

contact the people who failed to return the survey to encourage them to do so. The low response rate is obviously a problem. Moreover, the survey provided opportunity for only forced-choice responses to most questions. Conversations with these veterans would undoubtedly provided more depth to the answers.

CHAPTER V

RESEARCH FINDINGS

The survey participants are from a broad range of age and employment classifications. Of those who responded, 80 percent are unemployed and all are active in the NCCPVA. The participants have disability classifications that range from severe quadriplegia to mild paraplegia, and 21 percent of the respondents who selected "other" indicated that their disability stems from a multiple-sclerosis diagnosis. The respondents are single, married, and in some cases committed to long-term relationships (See Table 1).

Physical Factors

A test of chi-square was done on the effects of a physical disability classification and wheelchair selection. The data on disability classification of the respondents showed significance in the relationship to the respondents' wheelchair selection. A paraplegic is more likely to use a manual wheelchair (70.4%) than is a quadriplegic (50%). Of those respondents who had other classifications, 21 percent indicated that multiple sclerosis was the reason for wheelchair confinement, and 41.2 percent of those reporting were more likely to use

both types of wheelchairs compared with 16.7 percent of the sample that was quadriplegic who used both (See Table 2).

Table 1. Descriptive Statistics of the NCCPVA

Variable	Percent
Gender	
Females	7.7
Males	88.5
Age	
30 to 39 Years	1.9
40 to 49 Years	13.5
50 to 59 Years	32.7
60 to 69 Years	19.2
70 to 79 Years	21.2
80 to 89 Years	7.7
Employed	
Yes	19.2
No	80.8
Income	
0 to 9,999	7.7
10,000 to 19,999	23.1
20,000 to 29,999	11.5
30,000 to 39,000	9.6
40,000 to 49,999	3.8
50,000 to 59,000	9.6
60,000 to 69,000	5.8
70,000 to 79,999	3.8
80,000 to 89,999	3.8
90,000 and Up	1.9
Age at Injury	
20 to 29 Years	42
30 to 39 Years	22
40 to 49 Years	16
50 to 59 Years	10
60 to 69 Years	6
70 and Over	4
Marital Status	
Married or Living with a Partner	10.0
Widowed or Divorced	80.0
Other	10.0
Driving	
Yes	27.3
No	72.7
Number of Cases	52

Table 2. Effects of Disability Classification and Wheelchair Selection

Type of Wheelchair	Disability Classification: Paraplegic	Quadriplegic	Other	Total
Manual	19*	3	4	26
	70.4%	50%	23.5%	
Power	3	2	6	11
	11.1%	33.3%	35.3%	
Both	5	1	7	13
	18.5%	16.7%	41.2%	
Total	27	6	17	51
	100%	100%	100%	100%

chi square 10.754 P=0.029 df=4

Analysis was also done between the years confined in a wheelchair and current wheelchair selected. No significance was found using chi square. Therefore, from my sample there was no clear trend showing the number of years in a wheelchair impacting the type of wheelchair the respondents use (See Table 3).

Table 3. Effects of Years in Wheelchair on Wheelchair Selection

Type of Wheelchair	Years in Wheelchair: 1 to 20 Years	Over 21 Years	Total
Manual	18	8	26
	46.2%	61.5%	50%
Power	11	1	12
	28.2%	7.7%	23.1%
Both	10	4	14
	25.6%	30.8%	26.9%
Total	39	13	52
	100%	100%	100%

chi square 6.996 P=0.324 df=6

One respondent did give an interesting insight into the accumulated wisdom of the staff at the Veteran's Administration Hospital in which he was a patient.

> I just heard today at the Vet's Hospital that the staff refers to power wheelchairs as "death scooters." Every user gains weight, the reason being obvious! Quads [quadriplegics] have good reason to consider power chairs. Paras [paraplegics] better not be allowed by VA or Medicare to receive a power chair unless there is deterioration in arms. I'm sure w/c [wheelchairs] will get lighter, stronger and more comfortable, and more expensive as most are not paid for by the individual. (Respondent 637)

The fact that the VA has recognized the benefits associated with long term use of a manual wheelchair and is talking about those benefits to the patients could change the perceptions of the respondents over time. It was surprising to find that heart disease and development of rotor-cuff disorders did not influence the wheelchair selection. Although we know this quote is important to the V.A. staff, this survey did not provide data on the issue.

Wheelchair Selection Factors

I grouped the variables in wheelchair selection criteria, which include person(s) who aided in wheelchair selection and transportation issues involving wheelchairs. Analysis on the person who helped the respondent select his or her wheelchair using chi-square at 15.972 with 12 degrees of freedom showed no significance. Results of this

analysis are reported in Table 4. The purpose of this analysis was to determine whether a correlation existed between persons who helped the respondents select their wheelchair and which type was actually used.

Table 4. Person Who Helped Select Wheelchair and Wheelchair Selection

Type of Wheelchair	Person Who Helped Select Wheelchair Medical Person	Family/Friend	Other	No One	Total
Manual	7 53.8%	0 0%	10 43.5%	5 83.3%	22 51.2%
Power	4 30.8%	1 100%	11 47.8%	1 16.7%	17 39.5%
Both	2 15.4%	0 0%	2 8.7%	0 0%	4 9.3%
Total	13 100%	1 100%	23 100%	6 100%	43 100%

chi square 15.972 P=0.193 df=12

Transportation issues involving wheelchair lifts are not statistically significant. The questions involving these issues asked about the access to wheelchair lifts from possible outside sources such as public transportation and whether the respondent currently had a lift for a wheelchair in his or her own automobile. Primarily due to the weight of the chair types, this access potentially becomes important only when the respondent uses a power-type wheelchair (See Table 5).

Table 5. Effects of Wheelchair Lifts/Transportation and Wheelchair Selection

Type of Wheelchair	Transportation and Access To a Lift Yes	No	Total
Manual	9 26.5%	8 88.9%	17 39.5%
Power	12 35.3%	0 0%	12 27.9%
Both	13 38.2%	1 11.1%	14 32.6%
Total	34 100%	9 100%	43 100%

chi square 11.797 P=.003 df=2

Daily Living Factors

There is no statistical significance relating to the marital status of the respondents and their wheelchair selection. I found 75 percent reported they were either widowed or divorced. Of those who responded, the differences between wheelchair types could not be seen as significant because we could expect the same variation in answers that were randomly selected.

Although not significant, those respondents who live with a spouse, friend, or family member (74.5%) are more likely to have manual wheelchairs (69.2%) than those respondents who live alone or in an institution or had other living arrangements (30.8%). Because it is not statistically significant, it remains unknown whether there could be extra assistance given by those living with the disabled, and if the wheelchair- bound individual is

Table 6. Effects of Marital Status and Wheelchair Selection

Type of Wheelchair	Marital Status: Married or Living with a Partner	Widowed or Divorced	Other	Total
Manual	6 85.7%	15 41.7%	3 60%	24 50%
Power	1 14.3%	9 25%	1 20%	11 22.9%
Both	0 0%	12 33.3%	1 20%	13 27.1%
Total	7 100%	36 100%	5 100%	48 100%

chi square 6.199 P=0.401 df=6

able to stay in a manual wheelchair longer. Others in different living circumstance such as living alone may need to change wheelchair types having no help (See Table 7).

Table 7. Living Arrangements of Wheelchair-dependent Individuals

Wheelchair Type	Living Arrangements: Live Alone	Live with Someone	Other	Total
Manual	6 75%	18 47.4%	2 40%	26 51%
Power	0 0%	8 21.1%	3 60%	11 21.5%
Both	2 25%	12 31.5%	0 0%	14 27.5
Total	8 100%	38 100%	5 100%	51 100%

chi square 1.32 P= .515 df=2

Income was not found to be a significant factor in wheelchair selection. A possible reason could be that these respondents relied on the Veteran's Administration (VA) or Medicare and Medicaid for their health-care needs and

provision of wheelchairs. The income range has considerable differences. The respondents who were not employed (80.8%) were a greater proportion of the total respondents at the time the survey was administered. Four of the respondents indicated they had an income of less than $9,999, and one respondent said his/her income was greater than $90,000.

Table 8. Effects of Income and Wheelchair Selection

	Income Levels			
Type of Wheelchair	**0 To 49,999**	**50,000 To 1000,00**	**60,000 To 100,000**	**Total**
Manual	12 54.5%	8 66.7%	3 37.5%	23 54.8%
Power	6 27.3%	0 0%	2 25%	8 19%
Both	4 18.2%	4 33.3%	3 37.5%	11 26.2%
Total	22 100%	12 100%	8 100%	42 100%

chi square 22.563 P=0.208 df=18

Satisfaction with wheelchair type on wheelchair selection was shown not to be significant statistically. These data could indicate that the satisfaction with the respondents' current wheelchair type would typically mean that they would select the same wheelchair type again. Of those respondents who currently used a manual wheelchair, 76.9 percent responded that they were satisfied with their current wheelchair type, while 23.1 percent answered that they were not satisfied. This finding of satisfaction had

a larger percentage for those in power-type wheelchairs, who answered that 91.7 percent were satisfied with their current wheelchair type and only 8.3 percent were dissatisfied with their current wheelchair type (See Table 9.)

Collective Social Factors

Collective social factors encompass those variables that cover the perceptions among the wheelchair users and

Table 9. Effects of Satisfaction with Wheelchair Type on Wheelchair Selection

Satisfaction With Wheelchair Type	Manual	Power	Both	Total
Yes	20 76.9%	11 91.7%	11 78.6%	42 80.8%
No	6 23.1%	1 8.3%	3 21.4%	10 19.2%
Total	26 100%	12 100%	14 100%	52 100%

chi square 1.209 P=.546 df=2

the nondisabled public with whom they come in contact. These variables include feelings of independence with a particular wheelchair type, preference for one type (manual or power) over the other, and types of wheelchairs used by the respondents' friends. As seen in Tables 10 and 11, the results show that the respondents felt their particular wheelchair type, whether power or manual, gave them the greatest independence. The result was statistically significant. While comparing Tables 10 and 11, one can see

that those in power wheelchairs felt that their wheelchair type gave them greater independence. The responses of those in manual-type wheelchairs had no significance using the chi square test.

Table 10. Existence of Independence and Power Wheelchair Use

Type Of Wheelchair	Opinion			
	Agree	Neither Agree Nor Disagree	Disagree	Total
Manual	5 20.8%	10 66.7%	11 84.6%	26 50%
Power	8 33.3%	2 13.3%	2 15.4%	12 23%
Both	11 45.9%	3 20%	0 0%	14 27%
Total	24 100%	15 100%	13 100%	52 100%

chi square 17.031 P= .002 df=4

The data in Table 11 show that 75 percent of the respondents in a power-type wheelchair agreed to some degree a manual wheelchair gave a person better independence. The chi square test also showed significance.

The data in Tables 12 and 13 illustrate respondents' belief that public response to the manual wheelchair is better than public response to a power-type wheelchair and vice versa. The results indicate a high number of respondents neither agreed nor disagreed (63.5%) regarding public response to manual wheelchairs. The respondents (67.3%) neither agreed nor disagreed regarding public

Table 11. Existence of Independence and Manual Wheelchair Use

Type of Wheelchair	Opinion: Agree	Neither Agree Nor Disagree	Disagree	Total
Manual	15 88.2%	8 61.5%	3 15%	26 52%
Power	1 5.9%	2 15.4%	9 45%	12 24%
Both	1 5.9%	3 23.1%	8 40%	12 24%
Total	17 100%	13 100%	20 100%	50 100%

chi square 20.651 P= .000 df=4

response to power wheelchairs. Respondents disagreed and/or disagreed strongly (19.2%) that the public had a more positive response to a manual wheelchair than to a power wheelchair.

Table 12. Belief That Public Response Is Better to Manual Wheelchair Users

Type of Wheelchair	Opinion: Agree	Neither Agree Nor Disagree	Disagree	Total
Manual	1 33.3%	17 51.5%	8 50%	26 50%
Power	1 33.3%	7 21.2%	4 25%	12 23.1%
Both	1 33.4%	9 27.3%	4 25%	14 26.9%
Total	3 100%	33 100%	16 100%	52 100%

Chi square 6.189 P= .626 df=8

Table 13. Belief That Public Response Is Better to Power Wheelchair Users

Type of Wheelchair	Opinion			
	Agree	Neither Agree Nor Disagree	Disagree	Total
Manual	3 42.9%	17 48.6%	6 60%	26 50%
Power	1 14.2%	9 25.7%	2 20%	12 23.1%
Both	3 42.9%	9 25.7%	2 20%	14 26.9%
Total	7 100%	35 100%	10 100%	52 100%

Chi square 7.515 P= .482 df=8

As the data in Table 14 indicate, those respondents who currently use a manual wheelchair have a greater percentage of friends who also use a manual wheelchair (66.7%). The respondents who currently use a power-type wheelchair have friends equally distributed among power, manual, or both types of wheelchairs. The selection of which type of wheelchair the respondent's friends use is significant.

Table 14. Friends' Wheelchair Type Use

Respondent's Type of Wheelchair	Friend's Type of Wheelchair			
	Manual	Power	Both	Total
Power	7 33.3%	8 72.7%	8 66.7%	23 52.3%
Manual	14 66.7%	3 27.3%	3 25%	20 45.5%
Total	21 100%	11 100%	11 100%	43 100%

Chi square 6.702 P=.035 df=2

CHAPTER VI

DISCUSSIONS AND CONCLUSION

There is currently very little research in the specific area of wheelchair selection. As discussed in the literature review chapter, clearly there are a number of individuals who are potentially affected by this type of research. While this particular study had a small response rate, additional studies could encompass much larger wheelchair populations.

The reasons perceived for choosing one type of wheelchair over another have often been assumed to be physical factors and the severity of the wheelchair-dependent individual's injury or lack of mobility. This study has supported this perception. The number of years in a wheelchair, however, was not found to be significant.

The wheelchair selection factors, including who helped the respondent select a wheelchair and transportation issues, were not significant. The daily living factors including marital status, living arrangements, income, and satisfaction with manual wheelchair selection were also not

significant. Satisfaction was significant for power wheelchair users.

Collective social factors such as feelings of independence the respondents have with their particular wheelchair type and the type of wheelchair their friends use were significant. These two factors are statistically significant for explaining which type of wheelchair the respondents ultimately select.

The data also indicate that satisfaction with current wheelchair type, whether power or manual, was significant. The respondent was satisfied with whatever type of wheelchair he or she was using. It was interesting to note that respondents who were currently in a manual wheelchair indicated that 23.1 percent were not satisfied compared with only 8.3 percent in power-type wheelchairs who were not satisfied. The number of years the respondents have been in a wheelchair had little bearing on their selection.

The sample population's survey results show that there is no association between the marital status of the respondent, income, or the living arrangements and the type of wheelchair selected. It is noteworthy that the feelings of independence using the particular wheelchair type of the respondents (whichever type of wheelchair they used) were significant. Those respondents who currently used a manual

wheelchair were more likely to have friends in manual wheelchairs. However, those respondents who used a power wheelchair had approximately equal distribution of friends in power, manual, and those who used both types of wheelchairs.

The questions that ask whether public response is better to a power wheelchair and public response is better to a manual wheelchair found respondents neither agreeing nor disagreeing or, perhaps, had never thought about it.

The practical application of life-course theory in relation to the individuals interacting to their environment becomes more important to those in wheelchairs. As was discovered through the data, independence is an important variable, and maintaining individual independence is paramount in wheelchair selection and satisfaction. Contrary to my expectations, the concept of stigma was not manifested in the responses of this population.

This study was done in conjunction with the NCCPVA. At their request, and with the guidelines of the Human Subjects Review Board of Western Kentucky University, the researcher was not given access to the respondents' addresses. With the lack of address information needed for follow-up mailings to those respondents who failed to complete the survey, the response rate was low--only 52 of

200 total members who fulfilled the criteria for inclusion. By using a sample that included only veterans, the research may not reflect the total wheelchair population.

Categorizing this work as an exploratory study, the surface of this topic has barely been scratched; thus further research is needed to expand the knowledge of those in our society who are wheelchair-dependent regarding why they select specific wheelchairs. If, in conjunction with the medical community, a better understanding of the factors that are paramount in wheelchair selection can be fully understood, a patient who is prescribed a wheelchair can be given one that promotes lifelong independence and better equip the patient to be fully integrated into society.

A future study conducted with in-depth interviews of those members in our society who use wheelchairs could perhaps be a better model for gleaning the factors involved in wheelchair selection by individuals. This present study included few women; in the future, by using a sample that included greater diversity, perhaps a clearer picture could be made of those factors most important in selection. The very nature of surveys precludes the possibility of follow-up questions for any ambiguity that the respondents created through their comments on the survey. Perhaps most

important, this research lays the foundation for further research because of the elimination of factors involved in this particular study. It gives future researchers indications of specific areas to pursue in providing a more comprehensive picture of the social factors concerned with wheelchair selection.

APPENDIX A

Survey of Wheelchair Users

Thank you for your assistance in responding to these questions. Please be open and honest with your answers. All the information obtained from this survey will be confidential. Place a check on the line(s) that best represent(s) your answer to each question.

The following questions ask you about the type of wheelchairs you have used in the past and are now using.

1. Please check the type of wheelchair used for the following activities.

	Manual Wheelchair	Power Wheelchair
Hobbies		
Vacation		
Employment		
All mobility use		
When electric is being charged		

2. How long have you been in the chair that you use more often?

_____1 to 5 years _____16 to 20 years

_____6 to 10 years _____21 to 25 years

_____11 to 15 years _____Over 26 years

3. Are you satisfied with this type of chair?

_____Yes. Why?_____

_____No. Why not?_____

4. Do you need a vehicle lift for a wheelchair? (If no, skip question 5)

____Yes

____No

5. Do you have access to a lift for a vehicle?

_____Yes

_____No

The follow questions deal with your feelings and perceptions about public use of wheelchairs and how you perceive the public reacts to wheelchair use. For each item below check all that apply.

6. I feel people stare at me in public.

_____Strongly disagree

_____Disagree

_____Neither disagree or agree

_____Agree

_____Strongly agree

7. I am often ignored in public

_____Strongly disagree

_____Disagree

_____Neither disagree or agree

_____Agree

_____Strongly agree

8. Nondisabled people are unnecessarily helpful in public.

_____Strongly disagree

_____Disagree

_____Neither disagree or agree

_____Agree

_____Strongly agree

9. Nondisabled people act inconvenienced in public settings.

_____Strongly disagree

_____Disagree

_____Neither disagree or agree

_____Agree

_____Strongly agree

10. I am not treated differently from nondisabled people in public.

_____Strongly disagree

_____Disagree

_____Neither disagree or agree

_____Agree

_____Strongly agree

11. Activities in which I participate with my friends are

_____Basketball _____Racing _____Trapshooting

_____Cards _____Bowling _____Fishing

_____Hunting _____TV watching

_____Attend Sporting events _____Other_____

12. Manual wheelchair users envy power wheelchair users.

_____Strongly disagree

_____Disagree

_____Neither disagree or agree

_____Agree

_____Strongly agree

13. Manual wheelchair users ignore power wheelchair users.

_____Strongly disagree

_____Disagree

_____Neither disagree or agree

_____Agree

_____Strongly agree

14. Power wheelchair users are not as strong as manual wheelchair users.

_____Strongly disagree

_____Disagree

_____Neither disagree or agree

_____Agree

_____Strongly agree

15. There is no difference in the attitudes toward power wheelchair users as opposed to manual wheelchair users.

_____Strongly disagree

_____Disagree

_____Neither disagree or agree

_____Agree

_____Strongly agree

16. When considering attending social events:

_____I go if I know other disabled people will be there.

_____I have no preferences about going to social events.

_____I avoid social events.

_____I don't go to social events, because I don't want to impose on anyone.

_____Other_____

17. I am currently employed.

_____Yes

_____No

18. The wheelchair I use the most was selected because

_____of my employment.

_____of transportation issues.

_____of my physical limitations.

_____of social acceptance.

Place a check mark on the line that <u>best represents</u> your feelings.

19. I believe people in manual wheelchairs are physically stronger than people in power wheelchairs.

_____Strongly agree

_____Agree

____Neither agree nor disagree

_____Disagree

_____Strongly disagree

20. The Americans with Disabilities Act has improved my access to public buildings.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

21. The people that discussed with me which type of wheelchair I use are

_____physicians

_____friend/family members

_____physical therapist

_____other patients

_____other, please state_____

_____No one helped me choose.

22. I would rather use a manual wheelchair than a power wheelchair because it is easier to maneuver.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

23. I would rather use a manual wheelchair than a power wheelchair because it is more convenient to transport from place to place.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

24. I would rather use a manual wheelchair than a power wheelchair because I stay in better physical shape in a manual wheelchair.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

25. I feel a power wheelchair is cost prohibitive for me.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

26. I would rather not use a manual wheelchair.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

27. The public response to a manual wheelchair is better than the response to a power wheelchair.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

28. I feel I have greater independence in a manual wheelchair than a power wheelchair.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

29. I feel I stay in better physical condition in a power wheelchair than a manual wheelchair.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

30. I think that a power wheelchair is more convenient to transport from place to Place than a manual wheelchair.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

31. I think I have greater independence in a power wheelchair.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

32. I would rather use a power wheelchair than a manual wheelchair because it is easier to maneuver.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

33. The public response to a power wheelchair is better than the response to a manual wheelchair.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

34. I feel I stay in better physical condition in a power wheelchair than a manual wheelchair.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

35. I would rather not use a power wheelchair.

_____Strongly agree

_____Agree

_____Neither agree nor disagree

_____Disagree

_____Strongly disagree

The following questions ask you about some of your personal characteristics.

36. Age as of today

____20-29 ____60-69

____30-39 ____70-79

____40-49 ____80-89

____50-59 ____90 and up

37. Sex

____Male ____Female

38. Individual income

____$0-$9,999 ____$50,000-$59,999

____$10,000-$19,999 ____$60,000-$69,999

____$20,000-$29,999 ____$70,000-$79,999

____$30,000-$39,999 ____$80,000-$89,999

____$40,000-$49,999 ____$90,000 and up

39. Marital status

____Single

____Married or living with partner

____Widowed or divorced

____Other_____

40. Living arrangements

____Live alone

____Live with spouse/friend/family

____Live with paid caregiver

____Live in institutional setting

____Other_____

41. I am still driving.

____Yes ____No

42. Disability classification

_____Paraplegic ____Amputee

_____Quadriplegic (tetraplegia)

_____Other, please explain_____

43. Number of years since your injury

_____ 1 to 10 years ago _____21-30 years ago

_____11 to 20 years ago _____Over 30 years

44. Source of health care coverage

____Private insurance ____Medicare/Medicaid

____Veteran's Administration ____Other_____

45. Age at injury.

____20-29 ____50-59

____30-39 ____60-69

____40-49 ____Over 70

46. I have a service-connected injury

____Yes

____No

47. Most of my disabled friends use which type of wheelchair for everyday use.

____Power wheelchairs ____Manual wheelchairs

48. Are there any additional comments you would like to add that were not covered in the questions?

APPENDIX B
INFORMED CONSENT DOCUMENT

Project Title: Wheelchair Selection: Social Perspectives and their Potential Impact on the Disabled

Investigator: Lisa M. Boswell, Western Kentucky University Sociology Department Phone number of investigator: 270-428-3590

You are being asked to participate in a project conducted through Western Kentucky University and the North Central Paralyzed Veteran's Association.
The investigator will be available by phone, if need be, to explain to you in detail the purpose of the project, the procedures to be used, and the potential benefits and possible risks of participation. You may ask her any questions you have to help you understand the project. A basic explanation of the project is written below. Please read this explanation and discuss with the researcher any questions you may have.

1. **Nature and Purpose of the Project:** The purpose of this work is to study the social and physical factors that influence the selection of manual or power wheelchairs in physically handicapped individuals.
2. **Explanation of Procedures:** You will be asked to fill out a survey. The survey will be mailed back in the self-addressed, stamped envelope provided to you.
3. **Discomfort and Risks:** There are no risks or discomfort expected from being a participant in this study. If you find a question uncomfortable, you do not have to answer it.
4. **Benefits:** Wheelchair bound individuals will benefit by being better able to understand themselves and the social factors that influence them in their wheelchair selections.
5. **Confidentiality:** Every effort will be made to insure the confidentiality of all participants. The surveys and all notes will be available only to the investigator. Your identity will be held in

confidence, and a pseudonym will be used to identify your comments in the finished work.

6. **Refusal/Withdrawal:** Refusal to participate in this study will have no effect on any future services you may be entitled to from the University or the North Central Chapter of the Paralyzed Veterans of America. Anyone who agrees to participate in this study is free to withdraw from the study at any time with no penalty.
7. **Counselor Contact:** In the event of mental stress associated with this survey, please call the PVA Service Officer at 1-800-795-3632 for a referral

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