
Community Integration of Women with Spinal Cord Injuries: An Examination of Psychological, Social, Vocational, and Environmental Factors

Margaret A. Nosek and Laurie J. Walter

This study examines four aspects of community integration—relationships, productive occupation, personal and environmental resources, and psychological resources—to determine the extent to which women with spinal cord injury (SCI) are able to achieve the same levels of community integration as women without disabilities. Data were collected using a mailed questionnaire that was completed by 946 women with and without physical disabilities. A subsample of 120 women with SCI and 406 women without disabilities met the inclusion criteria. The impact of SCI on the community integration of women can be seen primarily in lower rates of employment, environmental barriers to socializing, and unmet needs for personal assistance services. There was no significant difference between the groups on measures of marital status, living arrangement, satisfaction with relationships with friends and family members, personal and household income, self-esteem, or perceived control. There is discussion of new perspectives on gender-sensitive models of community integration and the role of rehabilitation professionals in ensuring that clinical care is delivered in a gender-sensitive manner that empowers women to remove environmental barriers to their rehabilitation and community living goals. Key words: *community integration, environmental barriers, functional limitations, perceived control, personal assistance services, productive occupation, relationships, self-esteem, spinal cord injury, women*

MANY ASPECTS of community living in women with spinal cord injury (SCI) are substantially different from those of women in general and of men with SCI. When compared with empirical research addressing important issues for men with SCI, comparable research addressing important issues for women with SCI has been woefully inadequate. Although disability significantly affects expectations and opportunities in social relationships, family responsibilities, and employment for both genders, women in many ways experience a disproportionate negative effect resulting from the combination of being female and disabled. Women with SCI face numerous challenges that women without disabilities do not face, particularly after they complete medical treatment for the injury and exhaust what rehabilitation services they are eligible to receive, and then as they try to resume their

lives with their new identity as a person with a disability. This study examines the psychological, social, vocational, and environmental aspects of community integration for women with SCI compared with women without disabilities, and offers recommenda-

Margaret A. Nosek, PhD, is Director, Center for Research on Women with Disabilities, and Professor, Department of Physical Medicine and Rehabilitation, Baylor College of Medicine, Houston, Texas.

Laurie J. Walter, PhD, is an investigator at the Center for Research on Women with Disabilities, and Assistant Professor, Department of Physical Medicine and Rehabilitation, Baylor College of Medicine, Houston, Texas.

This study was funded through grants from the National Institutes of Health (HD30166-03/03) and the National Institute for Disability and Rehabilitation Research (H133B5003-97 and H133N50017-97).

Top Spinal Cord Inj Rehabil 1998;4(2):41-55
© 1998 Aspen Publishers, Inc.

tions to rehabilitation professionals on ways they can facilitate community integration by improving gender-sensitive clinical care and removing environmental barriers.

Community integration is a term that has been used in the literature primarily in reference to traumatic injury, particularly SCI and traumatic brain injury. It is most often used to refer to functioning within the home, integration into a social network, and productive activity.^{1,2} The most important measure has traditionally been return to competitive employment.³⁻⁵ Some have suggested that productive activity should include a broader range of endeavors, including volunteer and avocational activities.⁶ Homemaking activities are generally not highly ranked in the assessment of productive activities, thus putting a certain percentage of women in a lower status of community integration by default.

The rehabilitation literature has placed importance on functioning inside and outside of the home. Functioning is assessed as the degree to which an individual can reduce dependence on others for the execution of activities of daily living.⁷⁻¹² This concept is reflected in the World Health Organization paradigm of disablement, particularly the dimensions of disability and handicap.¹³ Instruments to assess this type of functioning, including the Craig Handicap Assessment and Reporting Technique,¹⁴ Arthritis Impact Measurement Scale,^{15,16} and Community Integration Questionnaire,¹ focus on dexterity, self-care, mobility, occupation, and social integration. The factor of social integration is variously assessed by these instruments as the frequency with which one goes out of the home, contacts or visits friends or relatives, or is involved in active recreation or organizational activities.

While the notion of functioning inside and outside of the home lends itself to measurement in clinical and service settings, it overlooks some elements that are essential to full community integration, such as environmental barriers, executive functioning, and the individual's sense of control over life. These elements are of primary value to individuals with disabilities working in the independent living movement. The service system of independent living centers that has grown out of this movement focuses on expanding personal skills and resources to enhance community integration.

The heuristic model of independence developed and operationalized by Nosek and colleagues^{17,18} identifies perceived control of one's life, psychological self-reliance, behavioral and environmental resources, and independence in physical functioning as four essential components of independence. This model provided grounding for the conceptual design of the current study. The thinking that gave rise to this conceptual model originated with the definition of independent living for persons with severe disabilities presented by Frieden et al.¹⁹ This definition focuses on controlling one's life, having options, making decisions, performing daily activities, and participating in the life of the community.

Perceived control is the expectation of being able to make decisions and engage in actions that will attain desirable consequences and avoid unfavorable ones.²⁰ It includes both self-control and control of the environment. Self-control is the ability to direct one's physical and mental abilities, emotions, and behavior, as embraced in Haworth's²¹ notion of competence. Perceived control also includes the belief that

The perceived availability of resources in the environment is particularly crucial in considering independence and community integration.

one can execute courses of actions required to deal with prospective situations, as in Bandura's concept of self-efficacy.²² Environmental control is the perception that one is able to exert power over human and material elements in the environment that particularly affect one's life. This is similar to the notion of internal locus of control presented by Rotter²³ and others.^{24,25}

Psychological self-reliance is generally associated with the emotional autonomy, ego integrity, self-confidence, assertiveness, sense of purpose, cleverness, and decision-making skills necessary to judge effectively which actions must be taken to meet the demands of a variety of situations and to initiate those actions. It includes coping, the capacity to handle stressful situations, and mastery, the ability to meet new challenges.²⁶ Whereas physical functioning has an instrumental, task-oriented character, psychological self-reliance includes managerial or executive functions.

Environmental factors include all physical and social elements external to the individual that can either facilitate or obstruct the achievement of personal goals.²⁷ Factors such as family support, geographical location, terrain, economic situation, political climate, educational opportunities, architectural accessibility, support services, and cultural values are among the environmental elements relevant to developing indepen-

dence. The perceived availability of resources in the environment is particularly crucial in considering independence and community integration. A resource is just as useless whether it is perceived to be unavailable or is truly unavailable.

Discussions of independence and community integration, although mentioning the importance of role fulfillment, tend to undervalue relationships. The long tradition of social psychology has shown the importance of social relationships for well-being.²⁸ Condeluci²⁹ posits interdependence as a more relevant construct than independence in the lives of persons who have lost a high percentage of friends and who experience considerable social isolation as a result of disability. Kerr and Meyerson³⁰ have questioned the value of independence as a goal of rehabilitation, stating that the mature person should be equally satisfied to be dependent, interdependent, independent, or dependable at various times in his or her life.

Numerous studies have shown the strong relationship between measures of social integration and measures of life satisfaction. Persons with SCI have been found to have levels of life satisfaction that are significantly lower than those of the general population.³¹⁻³⁵ Fuhrer and colleagues³⁵ found that variation in life satisfaction was less related to functional limitation due to SCI than to perceived control, self-assessed health, and social support. Several other studies have associated high life satisfaction with measures of family relationships and social life, and low life satisfaction with finances and employment.³⁶⁻³⁸

In the current study, the authors have chosen to focus on four aspects of community integration that are more reflective of the

personal and environmental priorities of the independent living model than of the functional priorities of traditional rehabilitation:

1. relationships
2. productive occupation
3. personal and environmental resources
4. psychological resources

Within these four parameters, the authors attempt to address the research question, "To what extent are women with SCI able to achieve the same levels of community integration as women without disabilities?"

Method

In 1992, the Center for Research on Women with Disabilities (CROWD) was funded by the National Institutes of Health (NIH) to study the broad range of sexuality issues facing women with physical disabilities. A complete description of the methodology of this study can be found elsewhere.³⁹⁻⁴¹ The study began with a qualitative interview study of 31 women with physical disabilities. The qualitative data analysis identified six thematic domains:

1. sense of self
2. relationships
3. barriers, including environmental and attitudinal barriers and emotional, physical, and sexual abuse
4. sexuality information
5. health issues
6. sexual functioning.

The second phase of this study was a national survey of women with disabilities, covering reproductive health care as well as dating, marriage, sexual functioning, parenting issues, and developmental issues such as family influences and a woman's sense of self as a sexual person. The findings

from the qualitative study and issues raised in the literature were used to develop items for this survey.

After pilot testing and refinement, the final version of the questionnaire consisted of 311 items containing 1,011 variables. During recruitment, each woman with a disability was offered her choice of hard copy, computerized, or audio cassette-taped versions of the survey, along with the option to complete the survey over the telephone with one of the project staff, in order to enable women with severe disabilities to complete the survey in privacy without assistance from family or attendants.

Criteria for participation in this survey included women who

- were between the ages of 18 and 65 years old
- had a physical disability limiting mobility or self care
- had no known cognitive impairments or mental health problems or problems understanding English that would significantly impair their ability to understand the survey and respond to the survey items as directed.

A national sample was recruited through 10 centers for independent living across the country and volunteers who responded to announcements of the study asking for participants. Questionnaires and postage-paid return envelopes were mailed to approximately 1,060 women with physical disabilities. Each woman was also sent a similar questionnaire (minus all disability-related questions) and a postage-paid return envelope to give to a nondisabled female friend. A total of 946 completed questionnaires were received, 504 from women with disabilities and 442 from members of the comparison

group, yielding a 45% response rate. Twenty-two of the women responding to the survey did not meet the age criterion and were excluded from the analyses.

The women who participated in this study represented every part of the United States and a wide variety of personal, social, and demographic characteristics. The women with and without disabilities in this sample were of similar racial background and socioeconomic status. The women without disabilities, however, were slightly younger, with an average age of 39 years, compared with 42 years for the sample of women with disabilities.

The sample of women with disabilities had the following characteristics. The most common primary disability type was SCI (26%), followed by polio (18%), neuromuscular disorders (12%), cerebral palsy (10%), multiple sclerosis (10%), joint and connective tissue disorders (8%), and skeletal abnormality (5%). Nearly half of the sample (49%) had disabilities since childhood (0 to 11 years old), 10% since adolescence (12 through 17 years old), and 41% since adulthood (18 years and over). Twenty-two percent had severe functional limitations, 52% had moderate disabilities, and 26% had mild disabilities.

Eighty-two percent were white; 9%, black; 4%, Hispanic; 2%, Native American; and 2%, Asian. Those living in urban or suburban areas made up 89% of the sample, with 11% living in small towns or rural areas.

The overall sample was well educated, with 53% of the women with disabilities and 42% of the women without disabilities having college degrees. Fifty-nine percent were working for a salary part time or full time, compared with 86% of women without dis-

abilities. The median annual personal income of the sample of women with disabilities was \$15,000, with a household income of \$25,000, compared with personal income for women without disabilities of \$18,500 and household income of \$32,000.

Assessment of community integration was accomplished using a combination of previously validated instruments and items that were generated from the qualitative interviews. These interviews were conducted during the first phase of the National Study on Women with Physical Disabilities. The items were refined in the process of developing the final questionnaire for the national survey. Relationships were assessed in terms of marital status, living arrangement, number and closeness of friends, and instrumental and emotional support from parents. Productive occupation not only was measured in terms of full- or part-time salaried employment, but also as volunteer activities, student activities, and homemaking. The survey also inquired about satisfaction with activities. Personal and environmental resources included education level; personal income; household income; transportation barriers; physical barriers in the environment; and the availability of, and satisfaction with, personal assistance services. Psychological resources included perceived control, as measured by Part I of the Personal Independence Profile;¹⁷ self-esteem, as measured by the Rosenberg Self-Esteem Index;⁴² a global rating of how things have turned out in life; perceived impact of disability on bringing out positives in life; and satisfaction with chances to make decisions.

The data analyses focused on determining the extent to which women with SCI were able to achieve the same level of community

integration as women without SCI. Because most of the data are categorical, χ^2 analyses were used to describe similarities and differences in four different areas of community integration: relationships, productive occupation, personal and environmental resources, and psychological resources. The primary assumption that the observations were independent of one another was also met.

Following tradition, findings were considered significant if the alpha level or P value was 0.05 or less.

Results

Description of the two samples

A subsample of 120 women with SCI and 406 women without any reported disabilities met the inclusion criteria for this set of analyses. The women in these two groups did not differ significantly in age ($t(524)=1.20$; $P = .23$). The women with SCI averaged 42.6 years of age, whereas the women without disabilities averaged 41.4 years of age. The racial composition of the two groups did not differ ($\chi^2(6) = 6.69$; $P = .35$). The largest racial category for both groups of women was non-Hispanic white, with 91 women with SCI (76.5%) and 325 women without any disabilities (80.4%) falling into this racial category. The second largest racial category was black (13.4% of women with SCI and 9.9% of women without disabilities).

The large majority of women with SCI (82.2%) and women without disabilities (77%) lived in urban areas. The two groups did not differ significantly in the proportions of women who lived in large cities, suburbs of large cities, medium-size cities, small towns, and farm/rural areas ($\chi^2(4) = 1.57$; $P = .81$).

Overall, the women with SCI reported a moderate level of functional limitation as measured by items from the Rand Medical Outcomes Study,⁴³ (mean = 14.24; SD = 3.29). Their scores for functional limitation ranged from 9 (severe limitations) to 25 (mild limitations) out of a possible 27 points. Twenty-one of the women with SCI (17.5%) indicated a severe level of limitations, and 78 of the women (65%) indicated a moderate level of limitations; 21 (17.5%) of the women reported a mild level of impairment. The average length of time since experiencing SCI was 21.42 years (SD = 12.18 years) with the range being <1 year to 57 years.

Relationships

The following set of analyses reports on the similarities and differences in relationships experienced by women with SCI and women without disabilities. Chi-square analysis indicated no differences on the proportion of women with SCI and those without across the six categories of marital status ($\chi^2(5) = 9.04$; $P = .11$). Table 1 reports the number and percentage of women in each category for the two groups of women.

In analyzing living arrangement, the authors found that 30.8% of the women with SCI lived by themselves, compared with 22.7% of the women without disabilities ($\chi^2(1) = 3.34$; $P = .07$). Slightly fewer women with SCI lived with a spouse (44.2%) com-

Overall, the women with SCI formed similar relationships with friends as women without disabilities.

Table 1. Marital status of women with SCI and women without disabilities*

Marital status	Women with SCI	Women without disabilities
Single, never married	37 (31.6%)	99 (24.8%)
Living with a partner, not married	12 (10.3%)	36 (9.0%)
Married	37 (31.6%)	152 (38.0%)
Separated	0 (0.0%)	15 (3.8%)
Divorced	26 (22.2%)	90 (22.5%)
Widowed	5 (4.3%)	8 (2.0%)

*The number of women in each group does not equal the total number of women in each group because of missing data.

pared with women without disabilities (50%) ($\chi^2(1) = 1.26; P = .26$).

Women were asked to evaluate their relationships with friends on a seven-point Likert scale, with 1 indicating “very untrue for me” and 7 indicating “very true for me.” In order to have adequate sample sizes in each response category, the first three points on the scale were grouped into an “untrue for me” response, whereas the last three points on the scale were grouped into a “true for me” response; the fourth point on the scale was a

neutral response to the statement, meaning that the statement was not really true or untrue in describing the woman’s friendships. Overall, the women with SCI formed similar relationships with friends as women without disabilities; however, women with SCI reported less agreement with the statement about their ability to determine how often they get together with their friends, compared with women without disabilities (Table 2).

Women in both groups were asked to assess the degree of truthfulness of three state-

Table 2. Satisfaction with friendships among women with SCI compared with women without disabilities

Friendship items	Women with SCI	Women without disabilities
I have at least one very close friend in whom I can confide ($\chi^2(2) = 0.75; P = .69$)	93.1%	92.8%
I am satisfied with my friendships ($\chi^2(2) = 2.57; P = .28$)	80.2%	83.8%
Because of my disability, I have lost many friends ($\chi^2(2) = 3.74; P = .15$)	29.6%	NA
I am able to determine how often I get together with my friends ($\chi^2(2) = 11.60; P = .01$)	71.6%	84.8%

Table 3. Satisfaction with relationship with family among women with SCI compared with women without disabilities

Relationship item	Women with SCI	Women without disabilities
I have a supportive family ($\chi^2(3) = 4.59$; $P = .20$)	56.4%	59.0%
I can count on my parents for financial help ($\chi^2(3) = 4.99$; $P = .17$)	50.4%	49.4%
I am satisfied with my relationship with my parents ($\chi^2(3) = 1.64$; $P = .65$)	59.0%	63.0

ments about their relationships with their parents. The themes for these statements emerged from the analyses of the qualitative interviews that grounded the development of items for the survey. Responses were given on a seven-point Likert scale. This scale was converted to four possible responses that included a "not applicable" response. The proportion of women in each response category ("not applicable," "untrue," "not untrue but not true," and "true") was not significantly different for women with SCI and women without disabilities for all three statements. Table 3 reports the percentage of women by group who indicated that the statements were true about their relationships with their parents.

Productive occupation

Employment status and satisfaction with activities are two variables that were used to assess the productive occupation of the women who participated in this study. The number of women who work differed significantly across groups ($\chi^2(1) = 43.35$; $P < .01$). Of the 120 women with SCI, 60 women (57.3%) reported that they worked for pay; whereas 347 of the women without disabilities (86.5%) reported that they worked for

pay. The groups did not differ significantly in the proportion of women who were volunteers ($\chi^2(1) = 2.58$; $P = .11$), students ($\chi^2(1) = 0.54$; $P = .46$), or homemakers ($\chi^2(1) = 0.34$; $P = .56$). Table 4 reports the percentage of women in each group who were working for pay or were students, volunteers, or homemakers. The proportion of women with SCI who reported either satisfaction (67.5%) or dissatisfaction (20.5%) with their current activities was not significantly different from the proportion of women with no disabilities who indicated either satisfaction (68.9%) or dissatisfaction (15.9%) with their activities ($\chi^2(2) = 1.80$; $P = .41$).

Personal and environmental resources

Women with SCI did not differ significantly from women without disabilities in education level ($F(1, 516) = .27$; $P = .61$), personal income ($F(1, 506) = .09$; $P = .76$), and household income ($F(1, 505) = .62$; $P = .43$). The means and standard deviations for these three variables are reported in Table 5.

More women with SCI indicated that physical barriers in the environment (34.5%) and the absence of reliable transportation (19.1%) limit their abilities to socialize, compared with women without disabilities

Table 4. Productive occupation among women with SCI compared with women without disabilities

Occupational status	Women with SCI	Women without disabilities
Work	57.3%	86.5%
Volunteers	45.0%	36.6%
Student	25.5%	22.1%
Homemakers	67.7%	64.6%

Table 5. Personal resources for women with SCI and women without disabilities

Resource	Women with SCI, mean (SD)		Women without disabilities, mean (SD)	
Education level (y)	13.93 (1.98)		13.83 (1.86)	
	Women with SCI		Women without disabilities	
	Median	Interquartile range	Median	Interquartile range
Personal income	\$12,000	\$18,000	\$17,000	\$18,000
Household income	\$30,000	\$30,000	\$30,000	\$32,900

(2.6% and 6.1%, respectively) ($\chi^2(2) = 123.89$; $P < .01$; and $\chi^2(2) = 27.13$; $P < .01$).

For each statement about personal assistant services, the proportion of women with SCI who reported that the statement was untrue for them was not significantly different from the proportion of women with SCI who reported that the statement was true. Table 6 reports the number of women in each response category for each statement about personal assistant services, as well as the χ^2 analyses.

Psychological resources

Women with SCI did not differ significantly from women without disabilities on self-esteem ($F(1, 524) = .04$; $P = .85$) and perceived control ($F(1, 524) = 1.16$; $P = .28$). Women in the two groups differed signifi-

cantly ($\chi^2(2) = 12.32$; $P = .002$) in their responses to the question, "How do you rate the way things have turned out for you?" The three possible answers were "better than expected," "the same as expected," and "worse than expected." A larger proportion of women with SCI (56%) reported that things had turned out worse than expected compared with the women without disabilities (44.5%), whereas a smaller proportion of women with SCI (13.8%) indicated that things had turned out the same as expected compared with women without disabilities (30.2%). Finally, more women with SCI (30.2%) compared with women without disabilities (25.3%) reported that things had turned out better than expected.

Women with SCI were asked to evaluate the statement, "Disability has brought out

Table 6. Satisfaction with personal assistance services among women with SCI

Personal assistance services	Women with SCI					
	Untrue		True		Not applicable	
	n	%	n	%	n	%
Having to relate to my partner or spouse as both my lover and my helper is a problem ($\chi^2(1) = 0.00$; $P = 1.00$)	27	22.9	27	22.9	60	50.8
Needing help with my daily activities doesn't allow me enough privacy for intimate relationships ($\chi^2(1) = 1.14$; $P = .29$)	24	20.5	32	27.4	53	45.3
I am generally satisfied with the assistance I have in daily activities ($\chi^2(1) = 2.48$; $P = 0.12$)	23	19.3	35	29.4	58	48.7

positive characteristics in me," on a seven-point scale. The seven-point Likert scale was collapsed into three categories as described previously. Significantly more women in this group indicated the statement was true ($n = 96$ [80.9%]) than the number of women who indicated the statement was untrue ($n = 11$ [9.2%]; $\chi^2(2) = 120.02$; $P < .001$).

Finally, the women in the study were asked to assess the truthfulness of the following statement: "I am satisfied with the chances I have had to make my own decisions about my life." As with the previous analyses, women rated this statement on a seven-point Likert scale, and the responses were collapsed into three groups: untrue, neutral, and true. The results of the χ^2 analysis of this statement crossed with group membership were not significant ($\chi^2(2) = 1.16$; $P = 0.48$). The proportions of women with SCI who indicated the statement was true ($n = 90$ [77.6%]) or untrue ($n = 14$ [12.1%]) were not significantly different from the corresponding proportions of

women without disabilities who indicated the statement was true ($n = 277$ [74.1%]) or untrue ($n = 41$ [11%]).

Discussion

The impact of SCI on the community integration of women can be seen primarily in lower rates of employment, environmental barriers to socializing, and unmet needs for personal assistance services. Women with SCI were severely disadvantaged in securing salaried employment, as were women with disabilities as a whole, despite both groups having about the same level of education as women without disabilities. Productive activity as volunteers, students, and homemakers was not different between the groups. It is interesting to note, however, that level of satisfaction with productive activities was generally high and about the same between the groups.

Physical barriers in the environment (eg, lack of ramps, elevators, and curb cuts) and

inadequate options for accessible transportation limited opportunities for socializing in about one third and one fifth of the women with SCI, respectively. Although a lack of transportation could be an issue for some women without disabilities, environmental barriers were basically not an issue for this comparison group.

The need for personal assistance with activities of daily living was not an issue for women without disabilities, and only half of the women with SCI reported needing personal assistance. Of those who reported a need for personal assistance services, only half were satisfied with the assistance available to them and the impact it has on their privacy. One relationship dilemma (unique to women with physical disabilities who needed personal assistance) that surfaced during the interviews preceding the development of this survey was having to relate to a spouse as both a lover and an assistant for basic survival activities, such as toileting, bathing, and dressing. For many women with SCI, this dual role caused problems in the relationship with their spouses, putting them in a situation in which they may tolerate abusive treatment or stay in a dysfunctional marriage in order to meet their basic survival needs.

The most notable finding in these analyses, however, is the distinct lack of difference between women with SCI and women without disabilities in the elements of community integration that are related to relationships, personal resources, and psychological resources. Although nearly a third of women with SCI had never married or live alone, compared with almost one fourth of women without disabilities, there were no significant differences between the two groups across

Life satisfaction may be heavily influenced by gender and societal expectations related to gender.

all categories of marital status, including marriage and divorce. This may be attributable in part to the use of the “best friend” method for recruiting the comparison sample for this study and the observation that women tend to be friends with other women of similar marital status. Despite the problem of environmental barriers limiting opportunities for socializing for the women with SCI, both groups had about the same level of satisfaction with their friendships and their relationship with their parents.

It is interesting to note that although women with SCI were significantly less likely than women without disabilities to have salaried employment, their levels of personal and household income were virtually the same. This may be accounted for, in part, by the availability of Supplemental Security Income and Social Security Disability Insurance for women with SCI.

The literature showed significantly lower levels of life satisfaction among persons with SCI compared with the general public. Although life satisfaction per se was not assessed in this study, two other validated measures of attitude toward life—that is, self-esteem and perceived control—showed no significant difference between women with SCI and women without disabilities. Previous studies used samples that consisted primarily of men, lending strength to the interpretation that life satisfaction may be heavily influenced by gender and societal expectations related to gender. A majority of

the women with SCI in this study believed that things had turned out worse than expected. Nevertheless, they maintained an affirmative attitude toward their disability, believing that it brought out their positive characteristics. Very few believed that things had turned out the same as expected.

Several factors that limited this study must be considered in interpreting the results. Although geographically varied, the sample was not randomly selected and consisted largely of volunteers. In both the group of women with SCI and women without disabilities, there was a larger proportion of more highly educated, nonminority women than can be found in the general population. Only a small proportion of each group were women who were in the lowest income brackets and lacked adequate medical care or other support services for community living. The "best friend" method that was used to recruit the comparison sample may have led to artificially small differences on variables such as marital status and education level. The questionnaire did not ask detailed questions about level or completeness of SCI, only about the presence of SCI and the level of functional limitations. Therefore, the authors were unable to conduct analyses on the effect of tetraplegia versus that of paraplegia on community integration. Comparisons to findings in the literature are limited by the fact that certain standardized instruments, such as the social integration scales of the Craig Handicap Assessment and Reporting Technique (CHART)¹⁴ and the Arthritis Impact Measurement Scale,^{15,16} were not included in this survey questionnaire.

The findings of this study have opened the door to considerable further research. Additional analyses could be conducted on the

same data set, examining the effect of severity of functional limitations on the various indicators of community integration. Predictors of work status could be identified in terms of education level, severity of functional limitations, and availability of personal assistance and other personal resources, and also in terms of psychological strengths, such as high self-esteem and perceived control. Comparison of findings from this study could be made to statistics on women in general from the US Census. Future studies should focus on compiling samples of women with SCI from lower income and resource levels. These women are much harder to identify and recruit into studies involving written questionnaires; therefore, alternative methodologies, such as telephone or face-to-face interviews, should be explored. Such studies should examine other resource issues, such as adequacy of medical care and adaptive equipment, that could have a profound impact on the ability of women to live successfully in the community.

Rehabilitation professionals can play a fundamental role in ensuring that clinical care is delivered in a gender-sensitive manner that empowers women to remove environmental barriers to their rehabilitation and community living goals. Topics such as menstrual management are not often brought up as part of comprehensive rehabilitation. The inability to achieve independence and confidence in managing menstruation as well as bowel and bladder needs keeps many women from fully engaging in work, school, and other community activities. Because child care is primarily a women's responsibility, clinicians can assist women with SCI who are mothers, or may decide to be, by offering them information about resources for parents with disabilities, such as Through the Look-

ing Glass in Berkeley, California. Information about reproductive potential and how to maintain reproductive health in the context of SCI is something rehabilitationists may provide to their patients that may not be available from general practice physicians or obstetricians/gynecologists. Many women who received rehabilitation services at the time of their injury may not have had the opportunity to maintain contact with rehabilitation medical service over the years. Active outreach by clinicians to bring current knowledge and techniques in the management of SCI to their patient population, both old and new, can greatly assist these individuals in increasing their functional independence and their potential to participate in their families and communities.

As members of professional organizations, rehabilitationists can bring an awareness of gender issues to their respective disciplines by establishing or becoming involved in special interest groups for women, by offering presentations on topics related to issues of concern to women with SCI, and by challenging research or clinical practice that is not sensitive to the needs of women. The role of rehabilitation professionals as linkages to other health care and social service providers is one that needs to be promoted in all educational and clinical training programs. Rehabilitationists can offer valuable information about disability issues to general physicians and physicians of other specialties, vocational counselors, and

other social service providers in order to enable women with SCI to receive the most effective services and to use all available resources to achieve their community integration goals.

Results of this study challenge the traditional paradigm of community integration that designates work status as the primary indicator. Women with SCI in this study were significantly less likely to be working than were women without disabilities, yet they had similarly high levels of satisfaction with their productive activities and about the same financial resources. Future studies should ask the same type of questions of men to verify this as a gender issue. It cannot be argued that one of the major effects of disability and society's response to it is the limitation of opportunities to work. The question must be asked, however, if this is the most important element in living a life of quality and being an integral member of the community. This study showed the importance for women of other types of productive activity, personal resources, relationships with friends and family members, self-esteem, and perceived control over life in compensating for limitations in opportunities for gainful employment and achieving integral involvement in the community. Additional studies exploring the interactions among these various elements of community integration will contribute to the improvement of the quality and relevance of rehabilitation services to women with SCI.

REFERENCES

1. Willer B, Rosenthal M, Kreutzer JS, Gordon WA, Rempel R. Assessment of community integration following rehabilitation for traumatic brain injury. *J Head Trauma Rehabil.* 1993;8(2):75-87.
2. Kreutzer JS, Wehman P. *Community Integra-*

- tion Following Traumatic Brain Injury*. Baltimore, Md: Paul H. Brookes; 1990.
3. Chan F, Dial JG, Schleser R, et al. An ecological approach to vocational evaluation. In: McMahon BT, Shaw LR, eds. *Work Worth Doing: Advances in Brain Injury Rehabilitation*. Orlando, Fla: Paul M. Deusch Press; 1991.
 4. Fryer LJ, Haffey WJ. Cognitive rehabilitation and community readaptation: Outcomes from two program models. *J Head Trauma Rehabil*. 1987;2(3):51-63.
 5. Johnston MV. Outcomes of community re-entry programmes for brain injury survivors: Part II: Further investigations. *Brain Injury*. 1991;5(2):155-168.
 6. Gobble EMR, Dunson L, Szekeres SF, et al. Avocational programming for the severely impaired head injured individual. In Ylvisaker M, Gobble EMR, eds. *Community Re-entry for Head-Injured Adults*. Boston, Mass: College-Hill; 1987.
 7. Cervelli L. Re-entry into the community and systems of posthospital care. In: Rosenthal M, Griffith ER, Bond MR, Miller JD, eds. *Rehabilitation of the Adult and Child with Traumatic Brain Injury*. 2nd ed. Philadelphia, Pa: FA Davis; 1990.
 8. Condeluci A, Cooperman S, Seif BA. Independent living: Settings and supports. In: Ylvisaker M, Gobble EMR, eds. *Community Re-entry for Head-Injured Adults*. Boston, Mass: College-Hill; 1987.
 9. Seaton D. Independent living: The need to recognize long term support. *Cogn Rehabil*. 1988;6:32.
 10. Alexander JL, Fuhrer MJ. Functional assessment of individuals with physical impairments. In: Halpern AS, Fuhrer MJ, eds. *Functional Assessment in Rehabilitation*. Baltimore, Md: Paul H. Brookes; 1984.
 11. Brown M, Gordon WA, Diller M. Functional assessment and outcome measurement: An integrative review. In: Pan EL, Backer T, Vash CL, eds. *Annual Review of Rehabilitation*. New York, NY: Springer; 1983:3.
 12. Salkind NJ, Beckwith RM, Nelson CF, et al. *A Summary of Instruments that Assess Independence*. Report No. 1. Lawrence, Kan: Research and Training Center on Independent Living, University of Kansas; 1982.
 13. World Health Organization. *International Classification of Impairments, Disabilities, and Handicaps: A Manual of Classification Relating to the Consequences of Disease*. Geneva, Switzerland: World Health Organization; 1980.
 14. Whiteneck GG, Charlifue SW, Gerhart KA, Overholser JD, Richardson GN. Quantifying handicap: A new measure of long-term rehabilitation outcomes. *Arch Phys Med Rehabil*. 1992;73(6):519-526.
 15. Meenan RF, Gertman PM, Mason JH. Measuring health status in arthritis: The arthritis impact measurement scales. *Arthritis Rheum*. 1980;23:146-153.
 16. Meenan RF, Gertman PM, Mason JH. The arthritis impact measurement scales: Further investigations of a health status measure. *Arthritis Rheum*. 1982;25:1,048-1,053.
 17. Nosek MA, Fuhrer MJ. Independence among people with disabilities: I. A heuristic model. *Rehabil Counsel Bull*. 1992;36(1):6-20.
 18. Nosek MA, Fuhrer MJ, Howland CA. Independence among people with disabilities: II. Personal Independence Profile. *Rehabil Counsel Bull*. 1992;36(1):21-36.
 19. Frieden L, Richards L, Cole JA, et al. *ILRU Sourcebook: A Technical Assistance Manual on Independent Living*. Houston, Tex: The Institute for Rehabilitation and Research; 1979.
 20. Baron R, Rodin J. Urban environment: Personal control as a mediator of crowding. In: Baum A, Singer JE, Valins S, eds. *The Urban Environment. Volume 1: Advances in Experimental Psychology*. Hillsdale, NJ: Erlbaum; 1978.
 21. Haworth L. *Autonomy: An Essay in Philosophical Psychology and Ethics*. New Haven, Conn: Yale University Press; 1986.
 22. Bandura A. Self-efficacy mechanism in human agency. *Am Psychol*. 1982;37:122-147.
 23. Rotter JB. *Social Learning and Clinical Psychology*. Englewood Cliffs, NJ: Prentice-Hall; 1954.
 24. Lefcourt HM. *Locus of Control: Current Trends in Theory and Research*. New York, NY: John Wiley & Sons; 1976.
 25. Phares EJ. *Locus of Control in Personality*. Morristown, NJ: General Learning Press; 1976.
 26. Lowry L. Independence and dependence in aging: A new balance. *J Gerontol Soc Work*. 1989;13:133-146.
 27. Rice BD, Roessler RT, Greenwood R, et al. *Independent Living Rehabilitation Program Development, Management and Evaluation*. Fayetteville, Ark: Arkansas Rehabilitation Research and Training Center, University of Arkansas; 1983.

28. Bradburn NM. *The Structure of Psychological Well-Being*. Chicago, Ill: Aldine; 1969.
29. Condeluci A. *Interdependence: The Route to Community*. Orlando, Fla: Paul M. Deutsch Press; 1991.
30. Kerr N, Meyerson L. Independence as a goal and a value of people with physical disabilities: Some caveats. *Rehabil Psychol*. 1987; 32:173–180.
31. Schulz R, Decker S. Long-term adjustment to physical disability: The role of social support, perceived control, and self-blame. *J Pers Soc Psychol*. 1985;48(5):1,162–1,172.
32. Dew MA, Lynch K, Ernst J, Rosenthal R. Reaction and adjustment to spinal cord injury: A descriptive study. *J Appl Rehabil Counsel*. 1983;14:32–39.
33. Mehnert T, Krauss HH, Nadler R, Boyd M. Correlates of life satisfaction in those with disabling conditions. *Rehabil Psychol* 1990; 35(1):3–17.
34. Yerxa EJ. Engagement in daily occupations and life satisfaction among people with spinal cord injuries. *Occup Ther J Res*. 1986;6:271–283.
35. Fuhrer MJ, Rintala DH, Hart KA, Clearman R, Young ME. Relationship of life satisfaction to impairment, disability, and handicap among persons with spinal cord injury living in the community. *Arch Phys Med Rehabil*. 1992;73(6):552–557.
36. Cameron P, Titus DG, Kostin J, Kostin M. The life satisfaction of nonnormal persons. *J Consult Clin Psychol*. 1983;41:207–214.
37. Crewe NM. Quality of life: the ultimate goal in rehabilitation. *Minn Med*. 1980;63(8):586–589.
38. Dunnun L. Life satisfaction and spinal cord injury: The patient perspective. *J Neurol Nurs*. 1990;22(1):43–47.
39. Nosek MA, Rintala DH, Young ME, et al. Sexual functioning among women with physical disabilities. *Arch Phys Med Rehabil*. 1996;77(2):107–115.
40. Nosek MA, Howland CA. Gynecologic cancer screening among women with physical disabilities. *Arch Phys Med Rehabil* 1997;78(12 Suppl. 5):539–544.
41. Young ME, Nosek MA, Howland C, Chanpong G, Rintala DH. Prevalence of abuse of women with physical disabilities: Results of a national survey. *Arch Phys Med Rehabil* 1997;78(12 Suppl. 5):534–538.
42. Rosenberg M. Appendix D: Scales and scores. In: Rosenberg M, ed. *Society and the Adolescent Self-Image*. Princeton, NJ: Princeton University Press; 1965.
43. Ware JE, Sherbourne CD. The MOS 36-item short-form health survey (SF-36): I. Conceptual framework and item selection. *Med Care*. 1992;30(6):473–483.