

Spouse Adjustment to Spinal Cord Injury: Long-Term Medical and Psychosocial Factors

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The authors investigated spouse adjustment to a partner's spinal cord injury (SCI) as a function of time since injury, and identified medical and psychosocial factors associated with adjustment.

Spinal cord injury (SCI) is a traumatic event with far-reaching consequences for the affected person. The medical and psychological adjustment of individuals with SCI has been the subject of considerable research in the past two decades. Although it is often acknowledged that spouses play a major role in the rehabilitation process (Christopherson, 1962; Litman, 1966; Livsey, 1972; Power & Dell Orto, 1980; Versluys, 1980) there has been little research to investigate spouse adjustment to a partner's SCI. It would seem, however, that many of the consequences related to SCI, including impaired mobility, need for physical assistance, sexual dysfunction, limitations on paid employment, and medical expenses would affect the non-injured spouse.

Information about early adjustment of spouses to their partners' SCIs is available from clinical observation studies in the hospital setting within the first several months after onset (Bray, 1977; Weller & Miller,

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1977). These observations suggest that both patients and spouses experience initial shock and may later feel angry or depressed. In the first days following the accident, Weller and Miller (1977) observed that spouses seem to experience an even greater sense of helplessness than does the patient who is the center of attention and has vital concrete tasks to perform. According to Bray (1977), the most noticeable behavior of families with a severely injured family member is depression stemming from impotent anger. There is no identified published information on spouses' long-term adjustment to living with a partner who has an SCI, although it has been noted, based on observations made in rehabilitation settings, that the adjustment process can last several years (Bray, 1977; Christopherson, 1962).

The results of many epidemiological studies suggest that life events can increase the risk of a variety of disorders. A positive relationship between stress caused by major life events and physical illness seems to exist (Bielauskas, 1982; Elliott & Eisdorfer, 1982; Rahe, 1974). Holmes and Masuda (1974) postulated that life change events lower "bodily resistance" and enhance the probability of disease. It is surprising that there has been little focus on the physical health of spouses of partners with SCIs or other disabilities, because this seems to be a stressful situation for spouses. It would seem that long-term care for a partner with a severe physical disability could lead to a greater risk of impaired health.

This study examined some of the effects of a partner's SCI on the non-injured marital or cohabiting partner. Because the majority of SCIs occur among men (82%, according to Young, Burns, Bowen, & McCutchen, 1982), our study focused on women married to or living with male partners with SCIs. In an attempt to isolate the specific effects of SCI from the general effects of length of marriage on spouses, women in this experimental group were compared to a sample of women who were married to or living with men who did not have SCIs. To assess long-term adjustment of spouses, women were selected whose partners had been injured for at least 2 years. Comparisons were also made between women whose partners had been injured less than 7 years versus more than 7 years because this time interval has been postulated by Christopherson (1962) and Versluys (1980) to be sufficient time for family members to successfully adjust to SCI. Furthermore, comparisons were made in terms of the partner's level of paralysis (whether or not arm function was significantly impaired) because it would seem that the spouse's daily activities and adjustment might be related to the level of impairment of the partner with SCI. The aspects of adjustment that we considered included satisfaction, stress, health, time spent assisting the partner, time spent in domestic activities, and sexual and social activities.

METHOD

Participants

In order to contact spouses and partners of men with SCIs, we identified 100 men with SCIs (60 cervical, 40 thoracolumbar) who had been patients at the Medical Center Hospital of Vermont or at the University Health Center in Burlington, Vermont since 1969, and who lived within a 200-mile radius of the research site. All 100 men were sent letters describing the study. Thirty-five (35%) of these men were known to be married, and it was not known how many additional men were living with partners. We did not send letters to men who were known to be single. Twenty-eight men (28%) gave their consent to participate in the project and provided the names and addresses of their female partners.

Of the 28 female partners identified, 25 served as participants in this study. These women met the following selection criteria: (a) willingness to complete a questionnaire and be interviewed by the project director; (b) aged 19 or older; (c) married to or living with a partner aged 19 or older whose SCI was the result of an accident that occurred at least 2 years previously; and (d) married to, living with, or involved with the partner for a least 1 year pre-injury or 1 year post-injury. Twenty (80%) of the women in this experimental group were married and five were living with their partners but were not married.

Comparison group participants were women attending outpatient pediatric, obstetric, or gynecologic clinics at the University Health Center for routine check-ups, and female staff members at these clinics because seven experimental participants were nurses). The pediatric clinic was selected to recruit participants with children (because 88% of the women in the experimental group had children), and the obstetrics and gynecologic clinic was selected to recruit additional women. Twenty-two women were matched to experimental participants based on the following criteria: (a) age; (b) income; (c) length of marital or cohabiting relationship; and (d) presence versus absence of children. We chose the "best fit" for each participant by first comparing age of female partner, income, and length of relationship as well as presence versus absence of children. We then compared education, employment, and ages of children. Comparison group participants for three women in the experimental condition were not obtained because of the combination of their advanced age ($M = 54$) and low income ($M = \$10,667$). Twenty-one participants in the comparison group were married, and one was living with her partner.

Spouse Questionnaire

A comprehensive self-report questionnaire to be completed by the female spouse was developed by a team of health care professionals in

rehabilitation medicine. Subscales completed by the female spouse about herself included: (1) demographic information (e.g., age, marital history, education, employment, religion, and hobbies); (2) social activities; (3) health; (4) amount of time required to assist partner; (5) life change events; and (6) satisfaction. Subscales completed by the female spouse about her partner included: (7) demographic information; (8) social activities; (9) functional independence; and (10) health. Subscales completed by the female spouse that pertained to the couple included: (11) living situation, (12) income; (13) household chores; (14) sexual activities; and (15) information on children and childcare activities. Subscales specifically related to SCI (4 and 9) were omitted for the comparison group. Subscales with specific scoring techniques are described below.

Subscales Completed by the Women about Themselves

Social activities. Participation in four social activities during the past 3 months (for example, getting together with family or friends) was rated on a scale ranging from 1 (high) to 3 (low).

Life Change Events Schedule. This measure was adapted from the Social Readjustment Rating Questionnaire (SRRQ) developed by Holmes and Rahe (1967). The SRRQ contains 43 life change events divided into four categories: family, personal, work, and financial. For this study, we omitted five life change events (e.g., death of a spouse) because they did not apply to this sample. Each life change event corresponds with a life change unit (LCU) score ranging from 11 to 73. These scores represent the intensity and length of time required by most people to adjust to a life event. Participants indicated which events occurred within the last year by placing a check mark next to the event. We then scored these events by multiplying them by the respective LCU score. The possible range of scores on the Life Change Events Schedule was 0 to 1261 LCUs, with a high score reflecting many life change events.

Past research (e.g., Masuda & Holmes, 1967; Rahe, 1969) has indicated that when different groups were asked to determine the LCU scores for the SRRQ, scores were comparable among groups. Spearman correlation coefficients between seven individual groups in Rahe's (1969) study, based on rank orderings of life change events, ranged from .63 to .94. Studies have found the SRRQ to correlate with health problems such as heart attacks (Rahe & Lind, 1971) and colds and fevers (Holmes & Holmes, 1970). An SRRQ score of 300 or more is generally considered to be predictive of subsequent illness (Rahe, 1974).

Satisfaction. We developed a measure of satisfaction to cover areas specifically related to SCI. This measure yielded an overall satisfaction

score, and satisfaction scores for each of the following nine areas: self, living arrangements, family income, employment, social life, general health, relationship with partner, sexual relations, and partner's adjustment to SCI.

Satisfaction was measured on a scale of 1 (extremely satisfied) to 8 (extremely dissatisfied) for each area of satisfaction, with a high score indicating low satisfaction. Overall satisfaction scores were mean scores of the nine sub-areas. The ninth area (partner's adjustment to SCI) was omitted for comparison group participants.

Subscales Completed by the Women about their Male Partner

Social activities. Participation in four social activities during the past 3 months (for example, getting together with family or friends) was rated on a scale ranging from 1 (high) to 3 (low).

Functional independence. Fifteen questions related to mobility and self-care yielded a score of functional independence based on a 3-point rating scale: 1 = independent, 2 = needs assistance, and 3 = unable to perform the task. A low score indicated functional independence.

Subscales Completed by the Women about the Couple

Household chores. This measure provided a list of nine household chores (for example, cooking and washing dishes) adapted from three sources (Beppeler, 1974; Carpenter, 1974; Rutter & Brown, 1966). Participants identified whether they or their partner performed each chore and who performed it more often. Scores ranged from 1 to 9 and reflected the number of chores performed by each partner and the number of chores that each partner performed more often. A high score reflected a greater number of chores performed.

Sexual activities. We asked participants to indicate the frequency with which they engaged in intercourse or sexual activity of any kind with their partner in the last 3 months based on the following scale: 1 = once or more per week, 2 = less than once per week, but more than once per month, 3 = once per month or less, and 4 = none. A high score reflected low sexual activity.

Childcare activities. Participants were asked to identify who performed each of six childcare activities (for example, discipline and organizing activities) and which partner performed them more often. We selected these childcare activities from Christopherson's (1960) assessment of family functioning after physical disability. Scores ranged from 1 to 6 and reflected the number of childcare activities performed by each partner and the number of activities performed by each partner

more often. A high score indicated performance of many childcare activities. We also asked participants to identify who took care of the children most frequently: the female partner, male partner, or both.

Subscales Completed by the Women and Rated by Health Professionals

Health of women. Based on self-reported health information provided by the women, three health professionals (two physicians and one nurse) rated the women on three health measures. First, Current General Health was based on a general assessment of health in the past year. We obtained this measure by asking the health professionals to assign each woman a global score ranging from 0 (excellent current general health) to 3 (severely impaired current general health) after reading the information provided by each woman about her health in the past year. Interrater agreement among the three health professionals' ratings of the woman's current general health was perfect in 44% of the cases. In another 44% of the cases, two raters agreed and in the remaining 12% of the cases, all three raters disagreed. When there was disagreement, we used mean scores.

Secondly, we devised a list of 28 specific health problems that had been mentioned by at least one woman in her self-reported health information as occurring anytime in her past. The health professionals assigned a score ranging from 1 (mild) to 3 (severe) to each health problem, based on their perceived level of severity of each health problem. Interrater agreement was perfect in 64% of the cases and two out of three raters agreed in another 29% of the cases. In the remaining 7% of the cases, all three raters disagreed. We used mean scores when there was disagreement among the raters. It was then possible to determine a score for the Number of Health Problems in the Past Year for each woman by adding the scores of each health problem (weighted by its severity) that occurred to her in the past year. Total scores for this measure for the women in the experimental group ranged from 0 to 6.

Finally, we determined the scores for Post-SCI Health Problems for each woman by adding the scores of each health problem from the above list (weighted by its severity) that existed in the past (before the last year), but after the partner's SCI. Total scores for this measure for the women in the experimental group ranged from 0 to 6.

Thus, a high score for each health measure indicated poor health. Health ratings for each comparison group woman were based on a comparable time period as that of her matched counterpart.

Health of male partners. Based on self-reported health information provided by the women about their partner's current health, three health

professionals (two physicians and one nurse) rated the health of the male partners. Health measures were different for men in the experimental and comparison groups. Men in the experimental group received ratings of 0 (none) to 3 (severe) for five health problems associated with SCI, yielding a total score of 0-15. These problem areas were identified as pain, spasticity, genitourinary, bowel, and skin complications. A score of 4 or more indicated significant medical problems. Men in the comparison group received ratings of 0 (none) to 3 (severe) for each current health problem. These discrepant measures might have elevated experimental group scores for mild urinary, bowel, and skin problems that would not have been reported in the comparison group. Comparison group scores, however, were based on more health problems than the experimental group scores, therefore comparison group scores had the potential to be higher. In both groups, a high score reflected poor health. Interrater agreement between health professional raters was perfect in 68% of the cases and two out of three raters agreed in all remaining cases.

Upper-Extremity Impairment of Men with SCI

Hospital medical records of male partners with SCI were rated by two health professionals for level of upper-extremity impairment. Ratings were based on a scale of 0 (none) to 3 (severe). Thus, a high score reflected significant upper-extremity impairment. Interrater agreement between the two raters was 91%.

Spouse Interview

Semi-structured interviews were conducted with each woman in the experimental group to gain more comprehensive knowledge about the course of adjustment to her partner's SCI. We used an interview guide containing a list of topics and specific questions. The interview covered the same general topics as the Spouse Questionnaire, as well as the course of adjustment to the partner's SCI over time. In addition, the following questions were asked: (a) How did you cope with your experiences related to your partner's SCI? (b) What were some of the difficulties you encountered related to your partner's SCI? (c) What helped you cope? and (d) Did anything positive result from your experiences related to your partner's SCI? Finally, we asked participants to make recommendations about improving the quality of services for persons with SCI and their spouses.

Each interview was audiotaped and transcribed. Three undergraduate student raters were trained to identify and score statements from the transcripts. We then developed categories for the responses to each of

the four questions. Because coping is a broad construct subject to interpretation, a team of four raters developed categories for the first question (i.e., How did you cope with your experiences related to your partner's SCI?) Thirty categories of coping were identified, including seven categories identified by Coyne, Aldwin, and Lazarus (1981). Each of 343 coping responses was assigned to one or more categories by two independent raters from a team of four raters; interrater agreement was 76.68%. Analyses were based on agreed-upon responses only (263 responses). Responses to the other three questions fell into more straightforward categories that the project director developed for each question. Because interrater agreement was high for one question (89.43%), independent ratings were not obtained for the remaining two questions.

Because of space constraints, only the results of the interview question regarding positive effects of SCI on the women will be reported in this article. We chose to report these results in this article because none of the objective measures included a focus on the positive impact of SCI. The remaining interview results can be obtained from the project director (the first author).

Procedure

Women in the experimental group were mailed the Spouse Questionnaire and were asked to schedule a time for the interview. The project director conducted the interviews, which lasted approximately 4 hours. The interviews were conducted either in the participants' home or in another mutually convenient location. We then paid participants \$10.00 at the completion of the interview. Comparison group women were asked to complete the Spouse Questionnaire when they arrived for their physician's appointment. Questionnaires were either completed prior to the appointment or were completed afterwards and returned by mail.

Health subscales were transcribed and submitted to health professionals for ratings. The health professionals were unaware of the identity of the participants and whether the participants were in the experimental or comparison group. With their signed consent, we obtained medical records of the male partners with SCIs from the hospital for ratings of level of upper-extremity impairment. Finally, audiotapes of interviews were transcribed and rated by undergraduate student raters.

RESULTS

Experimental and Comparison Group Differences

Matched variables. Experimental and comparison group participants were matched according to six variables: age, education, employment,

TABLE 1
Difference Between Experimental and Comparison Groups on Matched Variables (N = 22 Matched Pairs)

Variable	Experimental		Comparison	
	M	N	M	N
Age (in years)	35.1	19-52	33.5	23-52
Age (in years)	39.0	22-55	36.1	26-58
Education (in years)	12.2	9-16	13.8	8-16
Education (in years)	12.3	7-19	14.8	8-20
Income (\$)	23,386	7,000-44,000	28,682	7,5000-50,000
Length of relationship (in years)	15.0	1.5-28.5	9.5	1-30
Children at home	2.3	1-6	2.5	1-8
Number of children per family ^a	14	1-26	6.5	1-18
Age (in years)	16		14	
Employment	73%		73%	
Men	7		20	
Women	16		14	
				64%
				91%

^aBased on number of families with children at home.

income, length of relationship, and number of children. There were significant differences, however, in age and employment of male partners, education of both partners, income, length of relationship, and children's ages (see Table 1). Men in the experimental group were significantly older than men in the comparison group, $t(21) = 2.45, p < .05$. The majority of women in both groups were employed at the time of the interview; however, significantly more men in the comparison group than in the experimental group (20 versus 7) were employed, $\chi^2(1, N = 44) = 13.00, p < .001$. Although education levels were similar in both groups, both partners in the comparison group had significantly more education than the experimental group, $t(21) = 3.20$ and $t(21) = 3.14, p < .01$, for women and men, respectively. Experimental group participants had significantly lower incomes than comparison group participants, with a difference of \$5,296 per year, $t(21) = 2.76, p < .05$. Experimental group participants had been involved in a relationship for a significantly longer time period than comparison group participants, $t(21) = 3.08, p < .01$. Nineteen couples in each group had children; and matched families had a comparable number of children per family. Children in the experimental group, however, were significantly older than children in the comparison group, $t(33) = 5.95, p < .001$.

Subscales of the Spouse Questionnaire

We examined differences between experimental and comparison group participants in all Spouse Questionnaire subscales. Significant effects are presented in Table 2. These include: (a) health of the women, (b) health of their male partners, (c) household chores, and (d) frequency of sexual activities.

Health of the women. Health professionals' ratings of every health measure indicated that women in the experimental group experienced significantly poorer health than their matched counterparts. Specifically, women in the experimental group had significantly poorer Current General Health, $t(21) = 2.16, p < .05$, a greater Number of Health Problems in the Past Year, $t(21) = 2.74, p < .01$, and more Post-SCI Health Problems, $t(21) = 3.06, p < .01$, than did women in the comparison group. As Table 2 indicates, Current General Health and Post-SCI Health Problems ratings fell within the mild to moderate range for women in the experimental group, compared with ratings in the none to mild range for the comparison group.

Because the difference in health between women in the experimental and comparison groups was so salient, we examined the nature of these health problems more specifically. First, we compared the groups on the number of current health problems that had been rated as severe

TABLE 2
Means of Experimental and Comparison Groups on 4 Spouse
Questionnaire Subscales (N = 22 matched pairs)

Questionnaire subscale	Group	
	Experimental M	Comparison M
Health (female)		
Current general health (ranging from 0-3) ^a	1.00	0.46
Number of health problems in past year (continuous) ^b	1.45	0.42
Post-SCI health problem (continuous) ^b	1.27	0.17
Current health problems (male)	3.88	0.41
Household chores (ranging from 0-9)		
Difference between number of chores performed by female partner and number of chores performed by male partner	4.91	2.36
Frequency of sexual activities (ranging from 1 to 14) ^{cd}		
Sexual activity of any kind	2.57	1.59
Intercourse	3.00	1.59

Note. Lower mean scores represent better functioning.

^a0 = none, 1 = mild, 2 = moderate, and 3 = severe health problems.

^b0 = none, 1 = mild, 2 = mild-moderate, 3 = moderate-severe, and 4+ = severe health problems.

^c1 = once or more per week, 2 = less than once per week but more than once per month, 3 = once per month or less, 4 = none.

^dN = 18 matched pairs; *df* = 17.

(rating of 3) by health professionals. Significantly more women in the experimental group had severe health problems than did comparison group women, $\chi^2(1, N = 44) = 6.99, p < .01$. Furthermore, 11 of the experimental group participants (50%) had one or more health problems that had been rated as moderate (rating of 2) by health professionals; these had a median duration of 5 years. In contrast, only two comparison group participants reported moderate problems. Four women in the experimental group sustained back injuries from lifting their partners, indicating health problems due directly to caring for a partner with SCI.

Secondly, we examined the duration of the health problems that comprised Current General Health. Of the eight health problems reported in the comparison group, five (63%) began in the last year. Only 9 out of 20 health problems in the experimental group (45%) began in the last year. Most of the remaining health problems began at least several years previously and persisted for an average of 6 years.

Third, we enlarged the criteria for Number of Health Problems in the Past Year to include health problems that existed prior to the partner's SCI (rather than limiting the criteria to health problems that had not existed prior to the partner's SCI) in the experimental group, and for a comparable time period in the comparison group. Women in the experimental group reported significantly more such health problems than did comparison group women, $t(21) = 2.5, p < .05$.

Finally, we examined the presence of possible stress-related health problems. Over half of the experimental group participants (12 out of 22) reported current stress-related or psychogenic problems (e.g., headache, upset stomach, dizziness, and hypertension). In contrast, only three comparison group participants reported such problems, a statistically significant difference, $\chi^2(1, N = 44) = 9.88, p < .01$.

Health of the male partners. Despite the difference in health rating procedures described earlier, current health of the male partners was significantly worse in the experimental group, $t(21) = 6.73, p < .001$, than in the comparison group.

Household chores. Women in both the experimental and comparison groups performed significantly more chores than their partners, $t(20) = 6.29, p < .001$ and $t(20) = 5.76, p < .001$, respectively. Furthermore, women in the experimental group performed significantly more chores than their partners compared with women in the comparison group, $t(21) = 5.76, p < .001$.

Childcare activities. Male and female partners in both groups performed a comparable number of childcare tasks, but differences emerged in response to the question: "Who takes care of your children most?" Based on 14 matched pairs with children age 16 or younger, results indicated that women took care of their children most in the comparison group, whereas both partners were more likely to share the responsibilities of childcare in the experimental group, $\chi^2(2, N = 28) = 4.59, p < .05$.

Sexual activities. With regard to frequency of sexual activity, women in the comparison group reported significantly more sexual activity of any kind and greater frequency of intercourse compared with the experimental group, $t(17) = 3.48, p < .01$ and $t(17) = 5.14, p < .001$, respectively. Only one woman in the comparison group reported infrequent to no sexual activity of any kind compared with seven in the experimental group.

Life change events. Women in both groups reported comparable stress levels in the personal, family, work, and financial domains. On the remaining subscales (social activities and satisfaction), women in both groups reported moderately active social lives as well as comparable levels of satisfaction for all domains of satisfaction, with mean scores ranging from very satisfied to less than satisfied. No scores fell within the dissatisfied range.

Time Since Injury

The mean elapsed time since partner's injury was 8.33 years (range 2.0–16.5 years). To assess long-term adjustment as a function of time since SCI, we divided the experimental participants into two groups. The early adjustment group ($N = 12$) included participants whose partners were 2–7 years post-SCI. The later adjustment group ($N = 13$) included participants whose partners were more than 7 years post-SCI. The mean length of time post-SCI was approximately 3.5 years in the early adjustment group and 12 years in the later adjustment group. Groups were comparable in terms of age, income, education, length of relationship, and level of upper-extremity impairment.

We compared the two groups on all dependent measures of the Spouse Questionnaire and found significant differences on three health measures: (a) Number of Health Problems in the Past Year (women); (b) Post-SCI Health Problems (women); and (c) upper-extremity impairment (male partner). All other measures failed to reveal significant differences. Mean scores for Number of Health Problems in the Past Year and Post-SCI Health Problems were significantly higher in the later adjustment group ($M = 1.27$) than in the early adjustment group ($M = 0.18$), indicating worse health. The mean Number of Health Problems in the Past Year score for the early adjustment group was 0.73 (mild health problems) compared with 2.18 (mild to moderate health problems) for the later adjustment group, $t(20) = 2.30, p < .05$. Mean Post-SCI Health Problems scores were 0.18 (no health problems) and 1.27 (mild health problems) for the early and later adjustment groups, respectively, $t(20) = 2.54, p < .05$.

Because Post-SCI Health Problems scores were based on problems that began after SCI only, the higher score in the later adjustment group might simply have been the result of more time in which to develop problems. Therefore, we performed matched pairs t -tests within each group comparing experimental participants with matched comparison group participants. Based on this comparison, women in the later adjustment group had significantly worse past health problems than comparison group participants, as expected, $t(10) = 3.10, p < .05$. Interestingly, however, the early adjustment group did not differ significantly in number of past health problems from the comparison group, $t(10) = 1.35, p > .10$.

Our examination of the onset of health problems revealed that eight women in the later adjustment group developed at least one problem within the first 7 years after SCI. Most of these problems were chronic (9 out of 10) and still existed at the time of the interview.

The health of the partners with SCI was also significantly worse in the later adjustment group, $t(20) = 2.95, p < .01$ than in the early ad-

justment group. Mean health scores were 2.64 (nonsignificant health problems) and 5.18 (significant health problems) in the early and later adjustment groups, respectively.

Level of Upper-Extremity Impairment

To assess long-term adjustment as a function of the severity of disability, we divided the experimental group into two parts. The less severe impairment group included persons with upper-extremity impairment ratings of 0 (none) to 1 (mild). The more severe impairment group included persons with upper extremity impairment ratings of 2 (moderate) and 3 (severe). There were 15 couples in the less severe impairment group (7 none, 8 mild, $M = .54$) and 9 couples in the more severe impairment group (6 moderate, 3 severe, $M = 2.33$). Comparisons were based on demographic variables and Spouse Questionnaire subscales.

The two groups were similar in almost all respects. The only subscale of the Spouse Questionnaire that yielded significant differences was male functional independence, $t(22) = 2.68, p < .05$. Mean scores were 1.49 and 2.08 for the less severe and more severe impairment groups, respectively, indicating that more men in the more severe impairment group required assistance for mobility and self-care. There were no significant differences between groups on any measures of health or psychological adjustment, or on any measures of employment.

Positive Impact of SCI

Women were asked if anything positive resulted from their experiences related to their partner's SCI. Twenty-three said yes; two said no. The total number of responses was 62; the mean number of responses per woman was 2.69, with a range of 0–5.

The majority of responses were related to changes in relationships with their partners and families ($n = 34$). Fifteen women reported positive changes in their relationships with their partners as a result of SCI. These women felt that they were closer to their partners, communicated more, and were grateful for the opportunity to spend more time together. Additionally, eight women felt that their families were closer, and were grateful for the amount of time their partners spent with their children. Finally, 12 women experienced changes in values, such as reexamining their values, appreciating life and health more fully, and appreciating the importance of each day.

DISCUSSION

A major finding of this study was the occurrence of adverse health consequences as the result of being married to, or living with, a partner

with a SCI. Women in the experimental group had significantly worse scores than did women in the comparison group on every health measure, including worse current general health, more specific health problems, and more health problems in the past. Not only were the health problems of women in the experimental group more severe and of longer duration than those of comparison group women, but the nature of the health problems seems to have been stress related. The majority of the experimental group participants reported stress-related or psychogenic problems for the year prior to the interview, whereas only three comparison group participants reported such problems. Not surprisingly, men with SCIs also had significantly worse health than did comparison group men.

With regard to the relationship of medical factors and time since SCI, the health of both the women and their male partners was significantly worse in the later adjustment group (more than 7 years post-SCI) compared with the early adjustment group (2-7 years post-SCI). Both partners in the later adjustment group continued to experience the same health problems that originated within the first 7 years after SCI, as well as develop additional health problems. Thus, it seems likely that the amount of care needed by a person with SCI does not decrease over time, nor does the stress-related nature of such care decrease for the women. This is in marked contrast to the 7-year period speculated by Christopherson (1960) and Versluys (1980) to be adequate for successful adjustment to SCI. Although both partners may adapt successfully to the life changes following SCI, the situation remains stressful.

Interestingly, the impairment level of the partner with SCI was not significantly related to the health of either partner. The women and their partners were equally likely to have medical problems whether or not the impairment related to SCI was more or less severe. Presumably, the level of care and consequences of SCI are considerable regardless of the level of impairment.

Measures of psychosocial adjustment indicated that women in the experimental group reported a lower frequency of sexual activity than did the comparison group women. Experimental group women performed more housework than did comparison group women, which might reflect either the inability of their partners to assist with household tasks or the greater amount of housework generated by a spouse with an SCI.

It is interesting, however, that experimental group women and their partners were more likely to share childcare than were comparison group couples. Partners with SCIs were more available to help with the care of children; this is probably often the result of their unemployment. Thus, the presence of an additional parent in the home is more likely to result in shared responsibilities for childcare.

The women in the experimental and comparison groups did not differ significantly regarding their reports of nine different areas of satisfaction or their level of social activity. This finding is surprising in light of the group differences in physical health. It is possible that the women in the experimental group were satisfied with their health because they were comparing themselves with their partners, whose health was worse than their own. Another possibility is that experimental group women were denying perceptions of dissatisfaction as a coping mechanism. Most likely, however, women in the experimental group were genuinely satisfied with themselves, their marital relationship, and their partner's adjustment to a difficult and potentially life-threatening disability. Psychosocial factors did not differ significantly as a function of time since the SCI or as a function of level of impairment.

It must be emphasized that the experimental and comparison groups, although matched as closely as possible, still differed significantly on several demographic variables. It is possible that poorer health among experimental group women in this study was the result of their lower socioeconomic status. It is also possible that group differences in childcare activities reflect the significant difference between groups in their children's ages. Perhaps experimental group men were more involved with their children because their children were older than the children in the comparison group. It might have been more appropriate to recruit comparison group participants from community health centers serving less affluent populations. Even so, matching male partners for employment would have introduced problems related to why comparison group partners were unemployed. Nevertheless, a more closely matched comparison group would be necessary to attribute the group differences found in this study more definitively to the changes resulting from SCI.

A second weakness of this study was the large number of newly developed measures for which psychometric properties were not established, due mainly to the lack of previous research on psychosocial factors affecting families in which one member has an SCI. The interpretation of the results is limited by lack of reliability and validity data for most of the measures. It is hoped that future research on psychosocial variables will document the measurement characteristics of relevant instruments and remedy this problem.

In summary, the results indicate that spouse adjustment to the effects of living with a partner who has an SCI is a highly stressful process with major medical and psychosocial consequences. Furthermore, the process of adjustment continues even a decade after the injury. It is thus vital, for the medical and emotional health of the spouses, for health professionals to acknowledge the stressful nature of their situation, as well as the long-term nature of adjustment. Obviously, recognition of this situation is not enough. Providing spouses with re-

sources for emotional support, couple and sexuality counseling, financial assistance, household help, and education about effective coping all are indicated as possible interventions to reduce physical and emotional stressors.

Finally, it is important to note that the majority of women felt that their partner's SCI resulted in some positive changes. They reported that they felt closer as a family because of increased communication with their partners, and because of the amount of time their partners spent with their children. This factor was obtained from the interview, however, and not from more objective instruments; therefore, further research on the positive impacts of SCI is necessary to balance the focus on the negative aspects of SCI so prevalent in the literature.

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