

Unmet Expectations of Adjustment and Depressive Symptoms Among People With Chronic Traumatic Spinal Cord Injury

Yue Cao and Nicole D. DiPiro
Medical University of South Carolina

Juan Xi
University of Akron

James S. Krause
Medical University of South Carolina

Objective: We attempted to gain a better understanding of overall adjustment among people with chronic traumatic spinal cord injury (TSCI) by identifying participants who experienced unmet expectations of adjustment to TSCI. We also examined the relationship between unmet expectations and depressive symptoms. **Method:** This was a prospective cohort study. Participants who survived at least 1 year postinjury ($N = 863$) were assessed at 2 time points separated by 10 years. Using a 10-point ladder (1 = worst and 10 = best adjustment), self-predicted future adjustment was measured at Time 1. At Time 2, current adjustment was reassessed using the same scale to evaluate differences between predicted and actual adjustment. Adjustment expectations were considered unmet when actual adjustment ratings at Time 2 were lower than predicted adjustment at Time 1. We measured depressive symptoms by using the Older Adult Health and Mood Questionnaire at both time points. **Results:** More than half of our participants experienced unmet expectations of adjustment over a 10-year period, and having unmet expectations was positively associated with depressive symptoms. **Conclusion:** Unmet expectations of adjustment after TSCI are common among those injured, and they are important predictors of depressive symptoms.

Keywords: spinal cord injury, depression, adjustment after injury, expectations

Impact and Implications

- Although many predictors of depression have been identified among people with traumatic spinal cord injury (TSCI), unmet expectations of adjustment have not been examined so far. This is the first exploratory study in the rehabilitation field investigating the effects of unmet expectations on depressive symptoms.
- We found that unmet expectations of adjustment were prevalent among people with chronic TSCI, and unmet expectations were associated with a higher level of depression.
- It is important to reinforce patients' reasonable expectations and monitor individuals who have unrealistic expectations at their chronic

stage. Researchers should also consider measuring expectations and unmet expectations as important explanatory variables for future outcomes.

Introduction

Traumatic spinal cord injury (TSCI) is a sudden, major life event associated with increased risk of psychological morbidity and negative psychological states. Depressive symptoms are the most common form of negative outcomes after TSCI. Although the estimated prevalence of depression after TSCI varies widely due to the differences in measures used, participant characteristics, and cutoff points, most studies have indicated the prevalence ranges from 20–30% (Arias, 2011; Craig, Tran, & Middleton, 2009; Saunders, Krause, & Focht, 2012). These figures are significantly higher than those for the general population.

Depression is associated with excessive mortality and morbidity and, as such, is considered a major public health concern (Zimmerman et al., 1994). Depressive symptoms are disabling, related to many negative outcomes after TSCI, including decreased quality of life, interrupted activities of daily living, reduced community and social integration, fewer functional improvements after rehabilitation, decreased self-appraised health, longer hospitalization periods, and increased secondary complications (Craig et al., 2009; Elliott & Frank, 1996; Kalpakjian, Bombardier, Schomer, Brown, & Johnson, 2009). Depressive symptoms have also been related with numerous demographic, behavioral, and health factors. Demographic factors predictive of depression include age, gender, and race/ethnicity (Fuhrer, Rintala, Hart, Clearman, & Young, 1993; Krause, Kemp, & Coker, 2000). Social and behavioral

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Yue Cao and Nicole D. DiPiro, College of Health Professions, Medical University of South Carolina; Juan Xi, Department of Sociology, University of Akron; James S. Krause, College of Health Professions, Medical University of South Carolina.

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Correspondence concerning this article should be addressed to Yue Cao, PhD, College of Health Professions, 77 President Street, Room 207, Charleston, SC 29425. E-mail: caoyu@musc.edu

factors attributing to depression include marital status (Bombardier et al., 2012), socioeconomic factors (e.g., employment, income, and education; Kalpakjian & Albright, 2006; Krause et al., 2000), and availability of social support (Krause et al., 2000; Krause, Saladin, & Adkins, 2009). Health factors associated with depression include substance abuse (Dryden et al., 2005), pain (Ataoglu et al., 2013; Hoffman, Bombardier, Graves, Kalpakjian, & Krause, 2011; Krause, Brotherton, Morrisette, Newman, & Karakostas, 2007), and initial hospital length of stay (Krause et al., 2000; Krause, Saladin, & Adkins, 2009; Saunders et al., 2012). Coping strategies are important predictors of psychological adjustment after SCI (Chevalier, Kennedy, & Sherlock, 2009). Coping effectiveness training (Kennedy, Duff, Evans, & Beedie, 2003; King & Kennedy, 1999) is one intervention that has been implemented to examine changes in psychological outcomes, including depression, anxiety, self-perception, and coping in individuals with SCI. Following intervention, significant improvements in psychological adjustment to SCI have been found (Kennedy et al., 2003; King & Kennedy, 1999). The way an individual thinks about a situation, or their "cognitive appraisal," has also been well studied after SCI: Appraisals influence coping and psychological outcomes, and may play an important role in the rehabilitation process (Dean & Kennedy, 2009; Kaiser & Kennedy, 2011; Kennedy, Evans, & Sandhu, 2009; Kennedy, Lude, Elfstrom, & Smithson, 2010a, 2010b, 2012).

Though many predictors of depression have been identified, unmet expectations of adjustment to chronic TSCI have not been examined. After people survive from acute stage of TSCI, they hope to adjust to this major life event as quickly as possible, and it is natural for some of them to have high expectations or even unrealistic expectations about future outcomes. In a previous study involving expectations of rehabilitation after occupational therapy, Lysack et al. (2001) found that patients' expectations regarding independence with self-care 1 year postinjury were substantially higher than those of their therapists. They found that 70% of the patients had expectations of gaining independence with feeding, but only 20% of the occupational therapists shared those expectations (Lysack, Zafonte, Neufeld, & Dijkers, 2001). In another study (Harvey, Adams, Chu, Batty, & Barratt, 2012) comparing patients' and physical therapists' expectations about walking 1 year postinjury, the expectations among patients were much higher than those among physical therapists at the time of admission to rehabilitation. Patients' real performance of walking was measured later at 1 year postinjury. The results showed the expectations of the physical therapists were more accurate (Harvey et al., 2012).

Adjustment expectations after TSCI have their benefits from hope theory perspective (Elliott, Witty, Herrick, & Hoffman, 1991; Snyder, 1989; Snyder, 2002). Hope, defined as "the perceived capability to derive pathways to desired goals, and motivate oneself via agency thinking to use those pathways" (Snyder, 2002, p. 249), is related to lower depression and psychosocial impairment after TSCI (Elliott et al., 1991). Two major components of hope, agency ("goal-directed energy") and pathway ("planning to meet goals"), are particularly important to people who have traumatically acquired severe physical disabilities to maintain a sense of optimism and capability of coping despite their losses. Agency provides the motivation (energy) to meet the adjustment expectations, while pathway provides a sense of feasible strategies and means to achieve the successful adjustment. According to Elliott et

al. (1991), agency and pathway interact with each other during the process of reality negotiation. Agency plays a more important role for the short-term adjustment at the early stage after injury. However, for people who have been injured longer, pathway becomes more beneficial to the long-term adjustment (Elliott et al., 1991). Hope theory is insightful because it explains how and why higher-hopers are more likely to meet their adjustment expectations, but it does not specify the consequences of unmet expectations.

When anticipated adjustment does not occur, unmet expectations may negatively affect well-being (Xi & Hwang, 2011). Empirical studies across fields of research have supported that unmet expectations are associated with well-being. Employment studies have documented that unrealistic expectations and unachieved goals lead to distresses (Carr, 1997; Nelson & Sutton, 1991). In rehabilitation studies, unrealistic expectations for walking after participation in a functional electric stimulation exercise program resulted in significant changes in negative affective status, including increased depression and hostility (Bradley, 1994). In a recent study of the association between quality of life and change in mobility among individuals with TSCI, Riggins, Kankipati, Oyster, Cooper, and Boninger (2011) suggested that expecting ambulation when it is improbable could detract individuals with SCI from the time and effort that might be spent learning functional independence in a wheelchair, which may result in lower quality of life and higher depression scores.

Self-discrepancy theory can be a useful tool to understand consequences of unmet expectations, the discrepancies between expected adjustment, and the actual adjustment to chronic TSCI. Higgins and colleagues (Higgins, Bond, Klein, & Strauman, 1986; Higgins, 1987) proposed a model relating self-discrepancies, or the conflicting beliefs about the self, to depression and anxiety. The self-discrepancy theory is based on the relative congruence or lack thereof between aspects of identity, focusing on three domains of self: the "actual self," the "ought self," and the "ideal self." According to this model, self-discrepancies occur when people's belief of who they actually are (*actual self*) differs from their perception of who they ideally would like to be (*ideal self*) or feel they should be (*ought self*). The ideal self is representative of the attributes a person aspires to or would like to possess (e.g., being confident, beautiful, well-adjusted to TSCI), whereas the ought self is representative of the characteristics that the person feels they are responsible or obligated to possess (e.g., being hardworking, taking medicine regularly, not smoking; Higgins, 1987; Higgins et al., 1986). Any discrepancy between the *self-guides* (ideal and ought self) and the actual self can take a toll on an individual's psychological state. The theory maintains that the inconsistencies between actual self and ideal self are more likely to cause depressive states, while the inconsistencies between actual self and ought self are more likely to cause anxious states.

The theory has been tested in empirical studies. Strauman, Vookles, Berenstein, Chaiken, and Higgins (1991) found self-discrepancies related to body dissatisfaction/disordered eating and emotional distress. Waters, Keefe, and Strauman (2004) reported self-discrepancies can be reliably assessed in patients with low back pain, and the discrepancies related to more severe pain and higher levels of psychological distress. Among people with traumatic brain injury, the self-discrepancies between the postinjury self and the preinjury self also correlated with affective distress (Cantor et al., 2005). Although self-discrepancy theory has been

applied in research with clinical samples as well as normative populations, it has not been used in patients suffering from chronic disability. Our study expands the theory to include the discrepancy between expected and actual adjustment to chronic disability. In our study, expected achievement of adjustment to chronic TSCI represents one of the attributes a disabled person would like to possess in the future, and actual adjustment is representative of what he or she believes he or she actually possesses. We hypothesized that unmet expectations, as defined by the discrepancies between the injured person's expected achievement of their overall adjustment to chronic TSCI and their actual self-perceived overall adjustment 10 years later, might contribute to depressive symptoms. Understanding the unmet adjustment expectations in persons with chronic disability is important for several reasons. First, we need to know whether unmet expectations are prevalent among this population. Second, the possible association between unmet expectations and depression need to be empirically examined. Finally, interventions designed to reduce self-discrepancy (e.g., self-system therapy; Vieth et al., 2003) may be beneficial for persons suffering from unmet adjustment expectations.

Method

Participants and Procedures

This was a prospective cohort study. Institutional review board approval was obtained prior to initiating any data collection. We identified 1,929 potential participants from records of a rehabilitation specialty hospital in the Southeastern United States. The inclusion criteria were: minimum of 18 years old at time of survey, TSCI of at least one year in duration, and residual effects resulting from TSCI.

The baseline survey was conducted between 1997 and 1998. Approximately 4 weeks prior to mailing the first survey, we sent letters to participants announcing the study and describing the materials. Nonrespondents were sent a second mailing within two months of the initial mailing. Attempts were then made to contact participants by telephone, if possible, and, when requested, an additional packet of materials was sent. The response rate was 72%, with 1,386 participants completing the survey. Participants received \$20 in remuneration.

The second survey was completed in 2008, and 863 of the original 1,386 were followed up successfully (follow-up rate, 62%). Those who completed the second survey received \$50 in remuneration. The final sample size used in this study was 863 participants who completed both baseline and follow-up surveys.

Measurement

We measured depression symptoms using the 22-item Older Adult Health and Mood Questionnaire (OAHMQ; Kemp & Adams, 1995), a questionnaire often used for older adults and those with physical disabilities, including TSCI (Krause, Saunders, et al., 2009). The OAHMQ comprises few items reflecting physical or vegetative symptomatology, both of which may inflate scores in aging individuals, and in those with poor health or disability (Krause, Reed, & McArdle, 2010). The maximum score on the OAHMQ is 22, and scores of 11 and higher are considered probable major depression (PMD). The reliability and validity of

the OAHMQ have been supported among TSCI populations in previous studies (Kalpakjian et al., 2009). In our study, the standardized Cronbach alpha for the OAHMQ was 0.90 at baseline and 0.87 at follow-up.

Our predictor of interest in this study was unmet expectations of adjustment. At baseline survey, we used a 10-point ladder (1 = *worst* and 10 = *best adjustment*) to measure expected overall adjustment to TSCI in 5 years. Ten years later, the same 10-point ladder was used to measure current overall adjustment in the follow-up survey. We considered adjustment expectations to be unmet when current adjustment ratings at follow-up were lower than expected adjustment at baseline.

We measured four demographic variables (i.e., age at survey, gender, race, and marital status) and three injury variables (i.e., years since injury, injury origin, and injury severity) at baseline. The self-report injury severity was grouped into four categories: (a) C1–4 level injury and nonambulatory, (b) C5–8 level injury and nonambulatory, (c) noncervical injury and nonambulatory, and (d) ambulatory. This classification of injury severity follows that reported in the literature (Saunders & Krause, 2012), where ambulation replaces functional recovery as would be assessed using the American Spinal Injury Association Impairment Scale (Maynard et al., 1997). Ambulation is more appropriately measured using self-report. We used 5-point self-perceived health (1 = *poor health* and 5 = *excellent health*) and number of hours out of bed every day as two health indicators at baseline. We also included three socioenvironmental variables measured at baseline: (a) social support, (b) years of education, and (c) annual household income. Social support was measured using the Reciprocal Social Support Scale (RSSS; Anson, Stanwyck, & Krause, 1993; Krause & Carter, 2009). We dropped two items on spouse/partner from the original RSSS because more than 15% of participants who were single did not respond to these two items at the time of survey. The standardized Cronbach alpha of the RSSS was 0.75 at baseline. Measurements at baseline were used as independent variables in the analysis.

Analysis

Because our follow-up had a 38% attrition rate, we first evaluated selective attrition by comparing the demographic and injury characteristics of those who participated and those who did not at 10-year follow-up. We addressed the potential biases resulting from attrition in the analysis by adding an attrition correction factor, which is computed as the predicted probability that a respondent captured in baseline was lost at the end of this study (Berk, 1983; Heckman, 1979). We then compared the participants whose expectations were unmet with other participants whose expectations were met on measures of depression, demographics, and injury characteristics. We used the chi-square test for categorical variables and the *t* test for continuous variables to determine any significant between-groups differences.

Our outcome variables, OAHMQ total score and PMD (yes or no) measured at follow-up, were analyzed using ordinary least squares (OLS) regression models and logistic regression models separately. For each outcome variable, the first multivariate model had all the independent variables except for the unmet expectation variable. We added the unmet expectation variable in the second multivariate model to determine the contribution of unmet expect-

tations to the overall model fit. We implemented lagged-Y-regressor (or lagged dependent variable) analysis for all the regression models (Johnson, 2005; Putzke, Richards, Hicken, & DeVivo, 2002). This method added the lagged-Y-regressor (i.e., the outcome's prior values measured at the baseline) as a controlling variable in the regression models to eliminate autocorrelation in the residuals. So we used the depression measured at baseline in the regression models to estimate more specifically the unique explanatory power of unmet expectations.

Results

The attrition analysis showed those lost during the follow-up were more likely to be male, older, and with more years postinjury (see Table 1). We made the attrition correction factor by using these three variables and added it in all the multivariate models.

Among the 863 participants, 840 had a valid value for the unmet expectation variable. We found that 421 of them (just over 50%) experienced unmet expectations of adjustment to TSCI (see Table 2). There was no significant difference between people with unmet expectations and those without on either OAHMQ total score or PMD at the baseline. However, 10 years later, the unmet expectations group's OAHMQ total score was 2.2 points higher than that of the met expectations group, and the former group was more likely to have PMD at the follow-up. The average number of years since injury was about one year lower for the unmet expectations group. The unmet expectations group had a higher percentage of non-White, nonambulatory C1–4 injured, and ambulatory participants than the met expectations group (see Table 2).

In the first OLS regression model (without the unmet expectation variable), we found that being White, being married, being more years since injury, having poorer self-perceived health, and having lower income (<\$35,000) were significantly associated with a higher depression score measured at follow-up (see Table 3). The more severely injured participants, those with nonambulatory C1–4 and C5–8 injuries, had lower depression scores than ambulatory participants. As expected, the depression total score measured at baseline was the strongest predictor ($\beta = .42, p < .01$) of its second measurement. After adding the unmet expectation variable into the second regression model, the adjusted R^2 in-

creased from .26–.30, a 15% increase. The unmet expectation was significantly related to a higher depression score. Examination of the standardized regression coefficients indicated that, except for baseline depression score, the unmet expectation variable ($\beta = .20, p < .01$) made the greatest contribution toward predicting depression after controlling for other variables.

Using follow-up PMD as the outcome, the first logistic regression model showed PMD at baseline, being White, being married, being ambulatory, having poorer self-perceived health, and having lower income (<\$35,000) were related to significantly higher odds of developing PMD (see Table 4). After adding the unmet expectation variable into the model, we found that participants with unmet expectations were 2.84 times more likely to have PMD than those without. The likelihood ratio tests indicated that the second model had a significantly better fit than the first model, $\chi^2(1) = 23.2, p < .01$. Although rescaled R^2 is a pseudo R^2 for logistic regression model, we used it only for comparison purposes. It increased from .24–.28, a 17% improvement in rescaled R^2 . Because the attrition correction factor was not statistically significant in either the OLS models or the logistic regression models, we did not present it in the results (available on request).

Discussion

Our study confirmed that unmet expectations are of concern among people with chronic TSCI, because more than half of our sample experienced unmet expectations of adjustment over a 10-year period, and unmet expectations were positively associated with depressive symptoms. Although high expectation may be beneficial to short-term psychological adjustment soon after TSCI, it will lose momentum at the chronic stage, and the feasible pathways are the key to the successful long-term adjustment (Elliott et al., 1991). For those having high expectations without realistic planning and strategies at the chronic stage, it is highly possible the unmet expectations may contribute to a discrepancy between actual and ideal self, which will increase the likelihood of depressive states (Higgins, 1987; Higgins et al., 1986).

We found that ambulatory participants had a greater risk of depression than those with more severe injuries (i.e., nonambulatory, C1–4 or C5–8). This apparent contradiction is actu-

Table 1
Demographics, Injury Characteristics, and Mortality Comparison Between Study Sample and Lost Participants

Variables	Study sample (<i>N</i> = 863)	Lost to follow-up (<i>N</i> = 523)	<i>p</i> ^a
<i>M</i> _{age} (<i>SD</i>)	38.86 (11.82)	46.04 (15.56)	<.01
Male (%)	71.96	77.25	0.03
White (%)	24.8	25.62	0.73
Married (%)	36.04	39.58	0.19
Average years since injury (<i>SD</i>)	9.4 (6.31)	10.14 (7.66)	0.05
Violence origin (%)	11.7	14.34	0.15
Injury severity (%)			
Nonambulatory C1–4	11.67	15.95	0.08
Nonambulatory C5–8	30.22	30.74	
Nonambulatory noncervical	35.36	34.24	
Ambulatory	22.75	19.07	

^a The analysis of variance test was used for mean age and years since injury, and the chi-square test was used for all the other variables.

Table 2
Comparison Between People With Unmet Expectation and Those Without

Variables	Expectation unmet		<i>p</i> ^a
	No (<i>n</i> = 419)	Yes (<i>n</i> = 421)	
OAHMQ total score at Time 1 (<i>SD</i>)	6.09 (5.61)	6.2 (4.94)	0.78
OAHMQ total score at Time 2 (<i>SD</i>)	4.99 (4.64)	7.14 (5.02)	<.01
PMD at Time 1 (%)	20.05	17.91	0.44
PMD at Time 2 (%)	13.01	25.25	<.01
<i>M</i> _{age} (<i>SD</i>)	39 (11.28)	38.6 (12.15)	0.62
Male (%)	69.21	74.58	0.22
White (%)	79.00	72.21	0.02
Married (%)	36.99	35.39	0.76
Average years since injury (<i>SD</i>)	9.96 (6.55)	8.87 (6.08)	0.01
Violence origin (%)	10.5	12.59	0.44
Injury severity (%)			
Nonambulatory C1–4	9.11	14.35	0.02
Nonambulatory C5–8	34.29	26.56	
Nonambulatory noncervical	35.73	34.69	
Ambulatory	20.86	24.40	

Note. OAHMQ = Older Adult Health and Mood Questionnaire; PMD = probable major depression.

^a The analysis of variance test was used for OAHMQ score, mean age, and years since injury, and the chi-square test was used for all the other variables.

ally supported by some literature, which has suggested that ambulation is sometimes associated with undesirable outcomes. For instance, two studies have indicated that those who required assistance from others to ambulate reported higher depression than either independent ambulators or wheelchair users (Krause et al., 2007; Krause, Carter, & Brotherton, 2009). Additionally, incomplete injuries are associated with increased levels of pain (Aneshensel, 1992), and pain has been associated with depression (Ataoğlu et al., 2013; Hoffman et al., 2011; Krause et al., 2007; Saunders et al., 2012). Because those who are ambulatory

are more likely to have neurologically incomplete injuries, the secondary health conditions associated with incomplete injuries—pain specifically—may have contributed to the higher levels of depression among this group. Another possible explanation is the “sick role” perspective (Parsons, 1951). According to this perspective, an individual’s illness provides exemption from normal routines and social responsibilities, and, as the severity of the illness increases, exemptions are greater (Cockerham, 2012). Because nonambulatory cervical-level injuries are salient for their severity, the injured individuals are ex-

Table 3
Ordinary Least Squares Regression Analysis: Predicting Time 2 OAHMQ Total Score

Variables	Excluding unmet expectation		Including unmet expectation	
	Standardized β	<i>p</i>	Standardized β	<i>p</i>
Expectation unmet (vs. no)	—	—	0.20	<.01
Age	-0.20	0.64	-0.13	0.77
Male (vs. female)	-0.04	0.75	-0.03	0.83
White (vs. others)	0.08	0.02	0.09	<.01
Married (vs. others)	0.11	<.01	0.10	<.01
Years since injury	0.07	0.04	0.09	0.01
Injury severity (vs. ambulatory)				
Nonambulatory C1–4	-0.07	0.07	-0.08	0.04
Nonambulatory C5–8	-0.11	<.01	-0.10	0.02
Nonambulatory noncervical	-0.03	0.43	-0.02	0.59
Violence origin (vs. others)	0.04	0.28	0.03	0.37
Self-perceived health	-0.07	0.04	-0.07	0.04
Hours out of bed	-0.03	0.44	-0.02	0.63
Social support	-0.04	0.21	-0.04	0.28
Years of education	-0.05	0.17	-0.05	0.15
Household income (vs. >\$75,000)				
<\$35,000	0.12	0.02	0.09	0.06
\$35,000–75,000	0.02	0.60	0.02	0.68
OAHMQ at Time 1	0.42	<.01	0.42	<.01
Adjusted <i>R</i> ²	0.26		0.30	

Note. OAHMQ = Older Adult Health and Mood Questionnaire.

Table 4
Logistic Regression Analysis: Predicting Time 2 Probable Major Depression

Variables	Excluding unmet expectation		Including unmet expectation	
	OR [95% CI]	<i>p</i>	OR [95% CI]	<i>p</i>
Expectation unmet (vs. no)	—	—	2.84 [1.83, 4.4]	<.01
Age	0.88 [0.7, 1.12]	0.31	0.89 [0.7, 1.13]	0.35
Male (vs. female)	0.5 [0.08, 2.99]	0.45	0.5 [0.08, 3.12]	0.46
White (vs. others)	1.9 [1.11, 3.26]	0.02	2.07 [1.2, 3.58]	<.01
Married (vs. others)	1.72 [1.04, 2.85]	0.04	1.59 [0.95, 2.68]	0.08
Years since injury	1.02 [0.99, 1.06]	0.21	1.03 [0.99, 1.07]	0.16
Injury severity (vs. ambulatory)				
Nonambulatory C1–4	0.36 [0.16, 0.82]	0.02	0.33 [0.14, 0.76]	<.01
Nonambulatory C5–8	0.51 [0.28, 0.92]	0.02	0.53 [0.29, 0.97]	0.04
Nonambulatory noncervical	0.77 [0.46, 1.3]	0.33	0.81 [0.48, 1.38]	0.44
Violence origin (vs. others)	1.57 [0.8, 3.08]	0.19	1.49 [0.76, 2.93]	0.25
Self-perceived health	0.71 [0.56, 0.9]	<.01	0.7 [0.55, 0.89]	<.01
Hours out of bed	1 [0.94, 1.07]	0.93	1.01 [0.94, 1.07]	0.89
Social support	0.98 [0.94, 1.02]	0.28	0.98 [0.95, 1.02]	0.35
Years of education	0.99 [0.9, 1.08]	0.79	0.99 [0.9, 1.08]	0.77
Household income (vs. >75,000)				
<\$35,000	2.82 [1.26, 6.31]	0.01	2.68 [1.17, 6.13]	0.02
\$35,000–75,000	1.25 [0.52, 2.99]	0.62	1.25 [0.51, 3.1]	0.63
PMD at Time 1	4.78 [2.97, 7.68]	<.01	5.48 [3.35, 8.96]	<.01
–2 Log L	615.98		592.79	
Rescaled <i>R</i> ²	0.24		0.28	

Note. OR = odds ratio; CI = confidence interval; PMD = probable major depression.

empted from many social roles and responsibilities, which may mitigate some psychological stress in the adjustment process. Furthermore, if those severely injured can manage to fulfill some of their exempted social role and responsibilities, the psychological rewards could be significant.

Implications

For clinicians, it is understandable to provide more positive feedbacks than what they actually believe as a way to engender patients' hope at the acute stage of TSCI. However, it becomes more important at the chronic stage to reinforce reasonable expectations with realistic pathways to achieve the goals. Educating those with TSCI as to potential complications may be particularly important. Those who are ambulatory may need education about potential complications that may make ambulation difficult in the future. If people are suffering from depression caused by unmet expectations, clinicians may consider some interventions designed to reduce self-discrepancy (e.g., self-system therapy; Vieth et al., 2003).

From a research perspective, investigators should consider measuring expectations and unmet expectations, particularly in longitudinal studies, as important explanatory variables for future outcomes. Furthermore, our study raises interesting and significant research questions for both clinicians and researchers: How and when do we make patients more reasonable in their expectations while not hurting their hope?

Limitations

Our study has several limitations. First, although the 38% attrition rate is respectable considering the 10-year follow-up period, the potential biases from unobserved nonrandom loss of

respondents create legitimate concerns. We tried to minimize the biases by adding an attrition correction factor. However, because three variables used to predict attrition did not capture a high proportion of variance attributable to attrition, we cannot rule out the possibility of selection biases. Second, our measurement of unmet expectations is only one general item. It does not distinguish between different perspectives of the expectations after TSCI: for example, role and outcome expectations, and functional and psychosocial expectations. The simple conceptualization used here cannot rule out the possible bias caused by correlations between current adjustment and current depression. Third, all data are self-report measures, which might have under- or overreporting problems. Fourth, we do not have information on use of antidepressant medication and/or psychotherapy services received.

Despite these limitations, to our knowledge, this is the first empirical research in the rehabilitation field to focus on the effects of unmet expectations on depressive symptoms. Our findings suggest unmet expectations of adjustment are common among people with chronic TSCI and positively associated with depressive symptoms over time. Because people will face a tremendous challenge of adjustment after TSCI, it is necessary to identify and monitor individuals who have unrealistic expectations and for expectations to be kept at a realistic level at their chronic stage. Currently, it is easier for patients' expectations to be unrealistic due to mass media's inaccurate portrayal of neural plasticity and locomotor training and so forth, as well as some exaggerated commercials about magic recovery programs. We believe the deterioration of subjective well-being due to unmet expectations may be mitigated, in part, by providing a more realistic sense of potential outcomes, based on personal

circumstances, about the rehabilitation process and living with chronic TSCI.

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