

ORIGINAL ARTICLE

Psychological Resources, Appraisals, and Coping and Their Relationship to Participation in Spinal Cord Injury: A Path Analysis



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Abstract

Objective: To test the Spinal Cord Injury Adjustment Model and gain a better understanding about whether and how the psychological resources general self-efficacy (SE), purpose in life (PIL), appraisals, and coping influence participation in persons with spinal cord injury (SCI).

Design: Cross-sectional data collection within the Swiss Spinal Cord Injury Cohort.

Setting: Community setting.

Participants: Persons with SCI (N=516) who are ≥ 16 years old and living in the community in Switzerland.

Interventions: Not applicable.

Main Outcome Measures: Participation was measured with the restrictions subscale of the Utrecht Scale for Evaluation of Rehabilitation-Participation, General SE with the General Self-Efficacy Scale, PIL with the Purpose in Life Test-Short Form, appraisals with the Appraisal of Life Events Scale, and coping with the Brief COPE.

Results: General SE ($r=.32$) and PIL ($r=.23$) were associated with less participation restrictions. The initial model yielded a poor model fit. The modified final model had an acceptable fit ($\chi^2_{11}=36.2$; $P<.01$; root mean square error of approximation=.067 [90% confidence interval: .045-.09]; comparative fit index=.98). A total of 15% of the variance of participation was explained. In the final model, general SE had a moderate direct effect ($\beta=.24$) and mediated effects via threat appraisal and challenge appraisal and humor on participation, indicating a partial mediation effect. The association between PIL and participation was indirect: challenge appraisal and humor acted as mediators.

Conclusions: The results only partly support the double-mediating effect as suggested in the SCI adjustment model because both direct and indirect effects on participation were observed. Individuals with higher general SE and PIL perceive less participation restrictions. General SE seems an appropriate target to enhance participation. Longitudinal studies are needed to support our findings.

Archives of Physical Medicine and Rehabilitation 2014;95:1662-71

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Participation, defined as the involvement in a life situation,¹ can be severely affected by a spinal cord injury (SCI).² SCI may cause restrictions in persons' mobility and self-care and can impact

work, leisure, and social activities.³ Participation is a key rehabilitation target and an indicator of successful adjustment to chronic diseases⁴ and, specifically, SCI.⁵

Factors that have been connected with the level of participation of persons with SCI are sociodemographic variables (eg, age, ethnicity, education),⁶⁻⁹ lesion-related variables (eg, time since injury, lesion severity),⁵⁻⁹ and activity limitations.^{6,10} Environmental factors, including social support, are inconsistently

Presented to the Congress of the European Health Psychology Society, July 17, 2013, Bordeaux, France.

Supported by the Swiss Paraplegic Association in the framework of the Swiss Spinal Cord Injury Cohort Study (SwiSCI, www.swisci.ch).

Disclosures: none.

associated with participation.^{6-8,11-13} In a multivariate study incorporating sociodemographic and lesion-related variables and activity and environmental factors, 40% of the variance in participation was explained.⁶ Overall, according to the current state of research, a fair amount of variance in participation remains unexplained. However, other factors, such as psychological resources (eg, self-efficacy, self-esteem, purpose in life [PIL]), might contribute to participation of persons with SCI.

Psychological resources can be conceptualized as inner, health protecting potentials of a person representing a source to deal with difficult situations or obtaining valued ends.¹⁴⁻¹⁶ Knowledge regarding the link between psychological resources and participation in individuals with SCI is limited.¹⁷ Relations between high self-efficacy and higher levels of participation in work or physical activity have been frequently observed, but not without inconsistencies.^{8,11,17} Other studies have found links between higher social integration or physical activity with higher self-esteem^{8,12} and motivation.^{18,19} Associations between other psychological resources (eg, PIL) and participation have not been examined.¹⁷ Overall, evidence warrants further focus on psychological resources and their connection to participation. However, to better support individuals with SCI, we need to know not only whether, but also how psychological resources influence participation. A clear understanding of the underlying mechanism is necessary.

The Spinal Cord Injury Adjustment Model was established to explain adjustment after SCI.²⁰ It suggests that psychological resources determine adjustment outcomes (eg, participation) via appraisal and coping processes. More concretely, psychological resources, such as general self-efficacy (SE) (general belief that one can respond to contextual demands to produce an outcome²¹) or PIL (degree to which someone perceives life as meaningful²²), influence how an affected individual perceives SCI (eg, whether a person appraises SCI and its consequences as a threat or a challenge to be dared). These appraisals then have an effect on the coping strategies that are used by the person. Finally, the level of participation results from these prior coping processes. To summarize, the Spinal Cord Injury Adjustment Model proposes a double-mediating process that can be depicted as psychological resources (general SE/PIL) → appraisals → coping → participation.

Our overall project aims to examine how the psychological resources general SE and PIL impact various adjustment indicators. The effects on depressive symptoms and life satisfaction are studied in separate articles (C. Peter et al, Modeling life satisfaction in spinal cord injury: the role of psychological resources, unpublished observations, 2014; C. Peter et al., Depression in spinal cord injury: assessing the role of psychological resources, unpublished observations, 2014). We investigated these variables because research suggests better adjustment outcomes for individuals with higher general SE or PIL. Building on the Spinal Cord Injury Adjustment Model, the objective of this study is to evaluate the influence of general SE, PIL, appraisals, and coping styles in predicting participation after SCI. More specifically, we test the following hypotheses: higher general SE and PIL are

associated with better participation, and appraisals and coping styles mediate the impact of general SE and PIL on participation.

Methods

Study design

A community-based cross-sectional survey was conducted within the nationwide Swiss Spinal Cord Injury Cohort Study (SwiSCI). The responsible ethical committees approved the study. The design of the SwiSCI is described in more detail elsewhere.²³

Participants

Individuals with a traumatic or nontraumatic SCI, aged ≥ 16 years, and living in the Swiss community were eligible for participation in the SwiSCI. Persons with congenital conditions (eg, spina bifida), new SCI in the context of terminal illness, or neurodegenerative disorders (eg, multiple sclerosis) were excluded from the study. The SwiSCI recruits participants by screening the medical records of 4 specialized Swiss SCI rehabilitation centers (REHAB Basel, Basel; Spinal Cord Injury Center of the Balgrist University Hospital, Zürich; Clinique Romande de Réadaptation, Sion; Swiss Paraplegic Centre, Nottwil) and member lists of 2 SCI associations (Swiss Paraplegic Association, Nottwil, Parahelp Nottwil). Every participant signed an informed consent form.

Procedures

Self-report questionnaires were sent to all eligible persons by postal mail in 3 waves. First, information about the SwiSCI, the informed consent form, and a brief questionnaire about socio-demographic and lesion-related variables was sent. Persons who completed this questionnaire and agreed to participate in the SwiSCI received a second questionnaire on health, functioning, and well-being. A stratified random sample from the respondents of the second questionnaire was drawn controlling for sex, age, and level of lesion (paraplegia vs tetraplegia). This sample received a third questionnaire, which included the measures used in this study.

Measurement instruments

Psychological resources

PIL was measured with the Purpose in Life Test-Short Form.²⁴ The Purpose in Life Test-Short Form consists of four 7-point Likert-type items using different anchors for each item. Higher scores stand for a higher PIL. Good internal consistency and validity have been reported.²⁴

General SE was measured with the General Self-Efficacy Scale.²¹ It consists of ten 4-point Likert-type items. Higher scores denote higher self-efficacy levels. Good internal consistencies²⁵ and convergent and discriminant validity have been found.²⁶ The General Self-Efficacy Scale has been frequently used in SCI research.²⁷⁻²⁹

Appraisals and coping

Appraisals were measured with the Appraisal of Life Events Scale.³⁰ Using 16 adjectives, persons responded how they appraised difficult life events in the last 3 months on a 6-point scale. The adjectives refer to 3 dimensions: threat (eg, terrifying), challenge (eg, stimulating), and loss (eg, pitiful). Higher scores indicate higher appraisal levels. Good internal reliability and convergent validity have been reported.^{30,31}

List of abbreviations:

CFI	comparative fit index
PIL	purpose in life
RMSEA	root mean square error of approximation
SCI	spinal cord injury
SE	self-efficacy
SwiSCI	Swiss Spinal Cord Injury Cohort Study

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