Secondary Health Conditions, Activity Limitations, and Life Satisfaction in Older Adults With Long-Term Spinal Cord Injury

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Abstract

Background: Many individuals with a spinal cord injury (SCI) have lived several decades with their injury, leading to a need for a deeper understanding of factors associated with healthy aging in people with long-term SCI.

Objectives: To (1) describe secondary health conditions, activity limitations, and life satisfaction in older adults with long-term SCI, and to (2) investigate how sociodemographics, injury characteristics, and secondary health conditions are associated with their activity limitations and life satisfaction.

Design: Cross-sectional descriptive cohort study.

Setting: Home and community settings.

Participants: A total of 123 individuals (71% men, injury levels C1-L5, American Spinal Injury Association Impairment Scale A-D), mean age 63 years, mean time since injury 24 years.

Methods: Baseline data as part of the Swedish Aging with Spinal Cord Injury Study. Associations between variables were investigated with multivariable linear regression analyses.

Main Outcome Measurements: Bowel and bladder function, nociceptive and neuropathic pain, spasticity, the Spinal Cord Independence Measure, third edition, and the Satisfaction With Life Scale.

Results: Bowel-related and bladder-related problems were reported by 32% and 44%, respectively, 66% reported moderate or severe nociceptive and/or neuropathic pain, and 44% reported spasticity. Activity limitations were moderate (mean Spinal Cord Independence Measure, third edition, total score 65.2, range 8-100) where injury characteristics and spasticity explained 68% of the variance. Higher level and more severe SCI (based on the American Spinal Injury Association Impairment Scale) exhibited the strongest association with more activity limitations. Life satisfaction was rated just above the midpoint between satisfied and dissatisfied with life (mean Satisfaction With Life Scale total score 20.7, range 6-34). Marital status, vocational situation, bladder function and injury characteristics explained 38% of the variance, where having a partner showed the strongest association with greater life satisfaction. Activity limitations and life satisfaction were not associated with gender, age and time since injury.

Conclusion: Older adults with long-term SCI can maintain a relatively high level of physical independence and generally are satisfied with their lives, regardless of gender, age or time since injury. The associations demonstrate the importance of injury characteristics for the performance of daily activities and the social context for life satisfaction in older adults with long-term SCI.

Level of Evidence: To be determined.

Introduction

As a result of advances in health care and rehabilitation, many individuals with spinal cord injury (SCI) have lived several decades after their injury [1]. In addition to the challenges of living with a neurologic disability, individuals with SCI are more susceptible to some age-related conditions [2] and experience earlier functional decline compared with the noninjured aging population [3]. Consequently, they are more likely to perceive decreased independence and superimposed activity limitations, which can negatively affect their well-being. This poses demands on society and health care to meet the needs of older adults with long-term SCI and support their healthy aging.

Healthy aging can be defined as “the process of developing and maintaining the functional ability that enables well-being in older age” [4]. Hence, mitigating the consequences of a progressing disability would facilitate this process in older adults with long-term SCI. Although the life-long management of SCI has become a key physiatric area, and longitudinal studies have
followed individuals with SCI for several decades [5-8], there is not yet a clear understanding of the consequences of aging with long-term SCI [2,9]. In addition, most research on long-term SCI only includes individuals with a traumatic SCI (TSCI), and our knowledge of living with a nontraumatic SCI (NTSCI) is very limited.

Bowel and bladder dysfunction, pain, and spasticity are considered the main secondary health conditions among individuals with SCI [10,11], impeding their activity and social participation [10] and thereby having a major impact on quality of life [12]; however, most studies on SCI have not focused on older adults living with a long-term injury [11], and the association with sociodemographic factors, such as age and gender, and injury characteristics are not clear [9,11]. The effects of age and duration of injury on functioning and disability have been studied both longitudinally and cross-sectionally [3,13-15], but the results are inconclusive.

Because individuals with SCI now live longer, there is an increasing need to ensure that aspects of their well-being are met [16]. One important area in SCI research is life satisfaction [17]. Life satisfaction commonly is referred to as an individual’s subjective judgment on the current life situation in relation to his or her own standards and expectations [18] and reflects the perception to which degree aspirations and achievements in life are being met. Life satisfaction seems to improve from a low level shortly after injury [16,17] to a higher and stable level maintained over longer periods of time, although it still is lower than in the general population [17]. In studies of aging with SCI the results are, however, inconsistent. Life satisfaction does not seem to be associated with severity of injury or degree of impairment [19] but with marital status, perceived health [20], time since injury, and pain [16,20]. These associations have been studied mostly in younger individuals (<50 years) [16], and our knowledge of life satisfaction in older adults with long-term SCI is therefore very limited.

Despite increased attention to aging with SCI during the past decades, there is still limited knowledge of living with long-term SCI into later life. Furthermore, as the result of cultural and contextual differences, it is challenging to relate existing findings across national contexts. To the best of our knowledge, there are no comprehensive data on older adults with long-term SCI from the perspective of Northern Europe, specifically the Nordic countries (approximately 27 million inhabitants).

To contribute to the knowledge of aging with SCI, the Swedish Aging with Spinal Cord Injury Study (SASCIS) [21] was initiated. The SASCIS is a population-based, longitudinal cohort survey used to assess individuals 50 years of age or older and at least 10 years after a TSCI or NTSCI. In the first study, the methodology and initial results from the SASCIS are presented [21].

The objectives of the present study are to: (1) describe secondary health conditions, activity limitations, and life satisfaction in older adults with long-term SCI, and (2) investigate how sociodemographics, injury characteristics, and secondary health conditions are associated with their activity limitations and life satisfaction.

Methods

The Swedish Aging With Spinal Cord Injury Study (SASCIS)

Detailed information about the SASCIS and the study design, recruitment process, ethical considerations, data collection procedure, participants and non-participants, assessment tools used and their psychometric properties, and data on the sociodemographics and injury characteristics of the study sample have been presented elsewhere [21].

Participants

In Sweden, with a population of about 10 million people, approximately 250 men and women (mean age 51 years) sustain a SCI annually [22]. Approximately two thirds of the newly injured are 45 years or older and 54% have a TSCI. The total prevalence of TSCI in Sweden is estimated at about 5000 individuals [23]. The SCI Unit at Skåne University Hospital in Lund, Sweden, from which all participants in the present study were recruited, serves a population of about 1.8 million people and admits about 50 persons with TSCI or NTSCI (mean age 51 years) each year for primary rehabilitation.

All participants were community-dwelling and recruited from the clinical databases at the SCI Unit. The databases comprise individuals with SCI who have been in contact with the unit during the past 40 years. The 2 main inclusion criteria were 50 years of age or older and 10 years or more after TSCI or nonprogressive, acquired NTSCI. A total of 184 individuals met the inclusion criteria; 123 individuals (36 women and 87 men, mean age 63, range 50-89, years) agreed to participate, giving a total response rate of 67% [21]. There were no significant differences between the nonparticipants and the study sample regarding gender, chronological age, age at injury, time since injury, SCI level (tetraplegia/paraplegia), injury severity (complete/incomplete), and cause of injury (TSCI/NTSCI) [21]. On the basis of this, we have concluded previously that our sample is likely to represent the population aging with long-term SCI in southern Sweden [21]. The severity of injury was classified according to the American Spinal Injury Association Impairment Scale (AIS) [24], based on the participants’ medical records and confirmed during the data collection procedure (see the section “Data Collection Procedure”). For further comparisons
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