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BRIEF REPORT

Sex Differences in Theory-Based Predictors of Leisure Time Physical Activity in a Population-Based Sample of Adults With Spinal Cord Injury

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Abstract

Objective: To examine sex differences in theory-based predictors of leisure time physical activity (LTPA) among men and women with spinal cord injury, and secondarily, to identify factors that might explain any sex differences in social cognitions.

Design: A secondary analysis of Study of Health and Activity in People with Spinal Cord Injury survey data.

Setting: Community.

Participants: Community-dwelling men (n=536) and women (n=164) recruited from 4 rehabilitation and research centers.

Interventions: Not applicable.

Main Outcome Measures: Subjective norms, attitudes, barrier self-efficacy, perceived controllability (PC), and intentions.

Results: Men had stronger PC and barrier self-efficacy than women. Hierarchical regression analyses revealed that social support significantly predicted PC for both sexes, and health, pain, and physical independence also significantly predicted PC for men. Social support, health, and pain significantly predicted barrier self-efficacy for men. Social support was the only significant predictor of barrier self-efficacy for women.

Conclusions: Women felt significantly less control over their physical activity behavior and had lower confidence to overcome barriers to physical activity than did men. Although social support predicted PC and barrier self-efficacy in both men and women, men seemed to take additional factors into consideration when formulating their control beliefs for LTPA.

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Fifty percent of people with spinal cord injury (SCI) report no leisure time physical activity (LTPA) whatsoever. Further, women with SCI report 32% less activity than men with SCI.[1] These differences may be partly attributable to women with physical disabilities perceiving more barriers to physical activity than their male counterparts.[2] While women with SCI engage in less LTPA than their male counterparts, to our knowledge, no study has examined sex differences in other theory-based predictors of LTPA. Information on such differences could help explain the discrepancies in LTPA participation between men and women, and highlight psychosocial factors that should be differentially targeted in men versus women in order to increase their levels of LTPA.

The primary purpose of this study was to examine sex differences in theory-based predictors of LTPA within the framework of the theory of planned behavior (TPB).[3] The TPB constructs—attitudes, subjective norms, perceived behavioral control (PBC) and intentions— have been shown to be useful in predicting physical activity among a variety of populations including adults with SCI.[4,5] Given the differences observed in LTPA participation between men and women, we hypothesized that men would report higher scores on measures of the TPB social cognitions than women. The secondary purpose was to explore factors that may account for the differences in the strength of TPB social cognitions for each sex. This was an exploratory purpose, with no known previous research to guide the formulation of specific hypotheses.

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Table 1 SHAPE-SCI participant demographic information

	Men		Women	
Variable	Mean ± SD	n (%)	Mean ± SD	n (%)
Sex		531 (76.4)		164 (23.6)
Age (y)	46.7±12.9		47.2±14.9	
Years postinjury	15.9±12.0		12.9±10.2	
Injury severity				
C1-4, AIS grade A-C		61 (11.5)		14 (8.6)
C5-8, AIS grade A-C		150 (28.4)		34 (21.0)
T1-S5, AIS grade A-C		189 (35.7)		66 (40.7)
AIS grade D		129 (24.4)		48 (29.6)
Primary mode of mobility				
Manual chair		303 (57.0)		86 (52.4)
Power chair		166 (31.3)		55 (33.5)
Gait aid		62 (11.7)		23 (14.0)
LTPA (min/day)	29.63±52.67		20.3±38.0	

NOTE. Some participants declined to answer certain questions. Complete demographic data are presented elsewhere.[6]
Abbreviation: AIS, American Spinal Injury Association Impairment Scale.

Methods

The current study was a secondary analysis of data drawn from the Study of Health and Activity in People with SCI (SHAPE-SCI).[6] Inclusion criteria required that participants used a mobility device outside the home, were at least 18 years of age, and a minimum of 12 months posttraumatic SCI. All 4 data collection sites obtained ethics approval for the study. Over the course of an 18-month period, participants completed 3 telephone-delivered data collection interviews. Only baseline data were used for the purposes of this study. A full description of the SHAPE-SCI methods have been reported elsewhere.[6]

Participants

SHAPE-SCI participants were community-dwelling men (n=536) and women (n=164) with SCI who were recruited from 4 rehabilitation and research centers across Ontario (table 1).

Measures of TPB social cognitions for LTPA

SCI-specific questionnaires[5] were used to measure the TPB social cognitions for LTPA—attitudes (6 items), subjective norms (2 items), perceived controllability (PC) (5 items), barrier self-efficacy (5 items), and intentions (2 items)—using a 7-point Likert-type scale. (Note that the PBC construct was operationalized as both PC and barrier self-efficacy.[5]) Higher scores indicated more positive social cognitions toward LTPA (eg, 1 = strongly disagree; 7 = strongly agree). All measures had acceptable internal consistency (>.75).

List of abbreviations:

LTPA	**leisure time physical activity**
PBC	**perceived behavioral control**
PC	**perceived controllability**
SCI	**spinal cord injury**
SHAPE-SCI	**Study of Health and Activity in People with Spinal Cord Injury**
TPB	**theory of planned behavior**

Potential predictors of TPB social cognitions for LTPA

Potential predictors included age, mobility, injury severity,[7] perceived health (Medical Outcomes Study 36-Item Short-Form Health Survey, 5 items),[8] bodily pain (Medical Outcomes Study 36-Item Short-Form Health Survey, 2 items),[8] years postinjury, motor functional independence (FIM, 13 items),[9] and social support (1 item).[10] Detailed measurement information is reported elsewhere.[6]

Data analyses

Analyses of variance were conducted to identify any sex differences in the TPB social cognitions. Hierarchical multiple regressions were subsequently conducted to identify predictors of the TPB social cognitions with significant sex differences. Demographic variables that are known to correlate with LTPA among persons with SCI (age, injury severity, primary mode of mobility, years postinjury) were controlled for in the first 2 blocks.[1] Potential predictors of the TPB social cognitions—social support, health status, pain, and physical independence—were entered in block 3.

Results

The analysis of variance revealed that PC ($F_{1,691}=5.57$, $P=.02$) and barrier self-efficacy ($F_{1,691}=4.83$, $P=.03$) were significantly different between sexes. Men reported higher PC (mean ± SD, 5.36±1.46) than women (mean ± SD, 5.06±1.55). Men also reported higher barrier self-efficacy (mean ± SD, 4.11±1.52) than women (mean ± SD, 3.81±1.63). There were no significant differences for attitudes, subjective norms, or intentions between the sexes (all $P>.05$).

Hierarchical multiple regressions were conducted for the 2 TPB social cognitions that yielded sex differences: PC and barrier self-efficacy (table 2). For PC, the regression model was significant for women ($R^2=.20$, $F_{11,119}=2.67$, $P<.01$) and men ($R^2=.25$, $F_{11,429}=12.98$, $P<.01$). Social support significantly predicted PC for both sexes (men: $\beta=.19$, $P<.01$; women: $\beta=.30$, $P<.01$). The strength of the beta values was not significantly different ($z=.73$, $P=.46$). Health ($\beta=.20$, $P<.01$), pain ($\beta=-.16$, $P<.01$), years postinjury ($\beta=.10$, $P=.04$), and physical independence ($\beta=.39$,