

## Original Article

# Client-centred assessment and the identification of meaningful treatment goals for individuals with a spinal cord injury

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**Study design:** Retrospective analysis.

**Objectives:** (1) Describe the self-care, productivity and leisure problems identified by individuals with a spinal cord injury (SCI) during rehabilitation, (2) describe the perceived level of satisfaction and performance with self-care, productivity and leisure activities following an SCI, (3) quantify the relationship between the Canadian occupational performance measure (COPM), a client-centred, individualized measure of function, and the functional independence measure (FIM).

**Setting:** Tertiary rehabilitation centre, spinal cord injury unit, GF Strong Rehabilitation Centre, Vancouver, Canada.

**Methods:** Health records from 41 individuals with an SCI admitted between 2000 and 2002 were reviewed. Information was obtained from assessments performed on admission and discharge. Self-care, productivity and leisure problems identified by individuals with an SCI were described and their perceived level of performance and satisfaction was calculated. The relationship between the COPM and the FIM was measured by the Pearson product correlation.

**Results:** Self-care goals were identified most frequently (79%) followed by productivity (12%) and leisure (9%) goals. The top three problems identified by individuals with an SCI were functional mobility (including transfers and wheelchair use), dressing and grooming. A fair relationship was found between the COPM and the FIM ( $r$  between 0.351 and 0.514,  $P < 0.05$ ).

**Conclusions:** The results highlight the importance of including a client-centred outcome measure in the assessment of individuals with an SCI. Initial support is provided for use of the COPM in individuals with an SCI.

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**Keywords:** spinal cord injury; client-centred; goals; individualized; function; occupational performance

## Introduction

A spinal cord injury (SCI) results in major functional losses and the reorganization of one's own identity. The medical model, and in turn the passivity of the individual, dominate the initial acute hospital setting. The transition from acute hospital to a rehabilitation setting places an expectation of active participation on the individual. Reflections of those who have sustained an SCI indicate that the full rehabilitation process may take up to 4 years, a time

frame well beyond the average 2–6 months of inpatient rehabilitation.<sup>1,2</sup>

Therefore, inpatient rehabilitation can be seen as a stepping stone to the ongoing transition and learning that takes place in the community. As a result, individuals with an SCI have voiced a need to 'take charge' of their own care and become 'experts' in their capabilities.<sup>1</sup> A pivotal element in enabling individuals is client-centred rehabilitation.

Client-centred assessment and treatment is not a new concept to rehabilitation. However, specific methods for client involvement are rarely addressed in the literature.<sup>3</sup> Clients are more likely to be proactive in their health if they are actively involved in the therapeutic process.<sup>4</sup>

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Also, individuals are able to manage more tasks after the completion of rehabilitation if a client-centred approach has been adopted.<sup>5</sup> The use of a measure where the individuals explicitly identify their problems and treatment goals has been highlighted as one of the four key elements of a client-centred approach to rehabilitation practice.<sup>3</sup> Studies report that therapists typically rely on informal methods to engage an individual in problem identification and goal setting; however, the use of formal measures has been advocated.<sup>3,6,7</sup> Unfortunately, the inclusion of such measures in the rehabilitation literature has been limited.

The Canadian Association of Occupational Therapists in collaboration with Health and Welfare Canada supported the development of the Canadian occupational performance measure (COPM) to address this need for a client-centred assessment. The COPM is a client-centred, individualized measure of function.<sup>8</sup> The COPM was developed to detect change in an individual's self-perception of occupational performance. Occupational performance is defined as the activities an individual performs in the areas of self-care, productivity and leisure, in the context of their environment.<sup>4</sup>

A primary indicator of rehabilitation is the measurement of functional status. In SCI, this is most often determined using measures of observed physical performance such as the functional independence measure (FIM)<sup>9</sup> or Barthel index.<sup>10</sup> The FIM is reported extensively in the spinal cord literature and involves predetermined areas of assessment. It has been suggested that the FIM's general rehabilitation focus may not meet the needs of individuals with SCI, given the heterogeneous nature of these injuries.<sup>11</sup> In contrast, individualized, client-centred outcome measures such as the COPM are those in which the individual identifies and measures his/her own areas of difficulty. Therefore, each assessment is specific for that individual. The use of a client-centred, individualized outcome measure can provide a unique glimpse into the personal issues faced by those who have sustained an SCI, as well as provide a backbone for client-centred rehabilitation. These measures have been found to be more sensitive to change than standard measures of function and are often the foundation for goal-based, individualized treatment programmes.<sup>12</sup> The use of a patient-focused assessment for use with individuals with SCI has been advocated.<sup>11</sup> To date, no studies were found that used both a client-centred and an individualized assessment in individuals with an SCI, nor has their relationship to standard functional measures in this population been quantified.

The purpose of the study was to (1) describe the self-care, productivity and leisure problems identified by individuals with an SCI during rehabilitation, (2) describe the perceived level of satisfaction and performance with self-care, productivity and leisure activities following an SCI, and (3) quantify the relationship between the COPM and the FIM.

## Methods

### *Participants*

The study's research design was retrospective involving a chart review of demographic data, FIM and COPM assessments. Health records were reviewed from 41 individuals who sustained an SCI and received treatment from the SCI program between 2000 and 2002. Inclusion criteria were individuals who (1) sustained an SCI, (2) had a COPM completed and (3) were admitted for inpatient rehabilitation at an adult tertiary rehabilitation centre. Information was obtained from health record data of assessments performed on admission and discharge. Occupational therapists had performed all COPM assessments. Five of the eight SCI program occupational therapists administered the COPM consecutively to their clients. All COPMs that were administered between 2000 and 2002 were analysed. Clients were assigned to the therapists based on caseload availability and therefore the subjects represented a typical random sample of cases.

Occupational therapists, physical therapists, physicians and nursing staff on the SCI program had performed all admission and discharge assessments required to compute FIM scores. The university and local hospital research ethics boards approved the study.

Demographic variables extracted from the health records were age, gender, time since injury and duration of treatment.

### *Canadian occupational performance measure*

The COPM is a client-centred, individualized outcome measure administered using a semistructured interview to allow the client to identify areas of difficulty in the areas of self-care, productivity and leisure. Following problem identification, the client rates the importance of each issue using a scale from 1 to 10 (10 being the most important). Up to five identified problems are chosen by the individual as the goals of treatment. Individuals rate their current level of performance and satisfaction with their performance on each of the five identified goals. A scale from 1 to 10 is used, 1 being with great difficulty or not satisfied and 10 being with no difficulties or completely satisfied. Mean scores are obtained for satisfaction and performance with scores ranging from 1 to 10. On reassessment, the COPM guidelines recommend that individuals review their goals and again rate their performance and satisfaction on the goals identified on initial assessment.<sup>8</sup> A change score is obtained by subtracting the post-treatment score from the initial score.<sup>8</sup> The COPM has demonstrated test-retest reliability ( $r=0.80$  for performance and  $r=0.89$  for satisfaction; ICC=0.92 for performance and ICC=0.90 for satisfaction)<sup>8,13,14</sup> and has been shown to be a valid measure across diagnostic categories and treatment settings.<sup>15-20</sup>

*Functional independence measure*

The FIM is a measure of an individual's observed level of function. The FIM examines an individual's degree of independence on a 7-point scale for 13 activities of daily living (ADL). Scores range from 13 (totally dependent) to 91 (totally independent). The reliability and validity of the FIM in an SCI population has been well documented.<sup>21-23</sup>

*Statistical analysis*

Descriptive statistics were performed for all variables measured. Pearson's product correlations were used to assess relationships between COPM scores and FIM scores. An alpha level of 0.05 was used to identify statistical significance. The strength of the correlations was described using Portney and Watkins<sup>24</sup> correlational descriptors (good to excellent >0.75, moderate to good = 0.50-0.75 and fair = 0.25-0.50). Statistical analysis was performed using SPSS 11.0.

**Results**

*Demographics*

A total of 41 COPM data collection forms were included over a 2-year period.

Demographic data were captured for 38 of the 41 individuals. Participant characteristics are presented in Table 1.

**Table 1** Demographics

Variable	Mean or #	SD	Range
Gender (M/F)	29/9		
Paraplegia/ tetraplegia	18/20		
Incomplete/ complete	27/11		
Traumatic/ nontraumatic	25/13		
Age (years)	49	18.1	17-83
Time since injury (days)	52	73.1	11-364
Duration of inpatient rehabilitation (days)	121	79.2	16-375

**Table 2** Most frequently identified occupational performance problems

Self-care	%	Productivity	%	Leisure	%
Functional mobility	19	Meal preparation	6	Active leisure	4
Dressing	13	Home management	5	Social activities	3
Grooming	11	Paid employment	2	Quiet leisure	2
Feeding	8				
Bathing	7				

*Occupational performance issues*

A total of 200 occupational performance issues were identified, with an average of 4.8 issues identified for each individual. Self-care goals were identified most frequently (79%), followed by productivity (12%) and leisure (9%) goals. The top five reported difficulties identified as priorities on the COPM were, in descending order, functional mobility (including transfers and wheelchair use) (19%), dressing (13%), grooming (11%), feeding (8%) and bathing (7%), representing 58% of the total identified issues (Table 2).

*COPM scores and relationship with the FIM*

Average change scores for both COPM performance and COPM satisfaction were 4.6. The average FIM motor change scores was 31.5. See Table 2 for score breakdown. A significant relationship was found between the FIM motor change scores and the COPM performance ( $r = 0.351$ ,  $P < 0.05$ ) and COPM satisfaction change scores ( $r = 0.497$ ,  $P < 0.05$ ). Refer to Tables 3 and 4 for a summary.

**Discussion**

*Occupational performance difficulties*

A high frequency of self-care issues relative to productivity and leisure problems was found in the current study. At this early stage in recovery, individuals with an SCI are likely focused on the immediate self-care issues facing them and therefore have not considered the impact of their injury on the areas of productivity or leisure. These findings are similar to that reported in orthopaedic, stroke and general acute hospital samples.<sup>15,17,19</sup>

**Table 3** COPM and FIM motor scores - mean (SD)

	Admission	Discharge	Change
COPM performance	2.8 (1.44)	7.2 (1.92)	4.6 (1.57)
Self-care	3.1 (1.57)	7.8 (1.75)	4.7 (1.64)
Productivity	2.5 (2.18)	6.8 (2.44)	4.3 (2.73)
Leisure	2.3 (1.65)	7.1 (2.56)	4.8 (2.77)
COPM satisfaction	3.2 (2.11)	7.9 (1.62)	4.6 (2.14)
Self-care	3.3 (2.47)	7.9 (1.77)	4.6 (2.31)
Productivity	2.9 (2.31)	7.3 (2.63)	4.3 (3.10)
Leisure	2.4 (1.77)	7.4 (2.90)	5.0 (3.08)
FIM motor	37.9 (21.4)	69.1 (25.5)	31.2 (19.1)

**Table 4** Relationship between COPM and FIM motor scores

	<i>Admission</i>		<i>Discharge</i>		<i>Change</i>	
	<i>Performance</i> <sup>a</sup>	<i>Satisfaction</i> <sup>b</sup>	<i>Performance</i>	<i>Satisfaction</i>	<i>Performance</i>	<i>Satisfaction</i>
Admission FIM motor	0.452*	0.514*				
Discharge FM motor			0.388**	0.513**		
FIM motor change					0.351**	0.475**

<sup>a</sup>COPM performance; <sup>b</sup>COPM satisfaction

\* $P < 0.001$

\*\* $P < 0.05$

A breakdown in the types of issues identified by individuals with an SCI found functional mobility issues to be the most frequently reported problem, followed by dressing and grooming/hygiene issues. These results reveal a strikingly similar pattern to those reported in stroke, orthopaedic, neurological and general acute hospital samples, which points to the universality of occupational performance problems faced by individuals after a trauma.<sup>15,17,19</sup> Mobility, dressing and grooming are basic and essential requirements for independence, suggesting that the primary goals during the initial phase of rehabilitation are aimed at regaining some of this lost independence. The issue of independence has been highlighted in the literature as a primary goal both during inpatient rehabilitation and in the community.<sup>6,25</sup>

The identification of mobility issues may be relevant for a number of reasons. First, mobility may be seen as representative of being 'disabled' to the outside world. Second, mobility is essential to interact with and explore the environment. In a panel discussion on consumer priorities for research in SCI, walking was the ultimate goal identified by almost all participants.<sup>25</sup> Functional mobility has been the most frequently identified issue in studies using the COPM in neurologic and orthopaedic samples.<sup>15,19</sup> Further, on admission to a rehabilitation inpatient setting, individuals with a stroke identified walking as their most frequent goal when asked 'what are your goals'.<sup>26</sup> The findings of the current study and those of the literature suggest that issues of mobility, whether this includes walking, wheelchair use or transfers are a priority for individuals.

An unexpected finding was the lack of problems identified in bowel and bladder management. Bowel and bladder issues have been highlighted as a major area of difficulty following an SCI.<sup>27</sup> Firstly, one possible reason for the absence of such goals is that individuals viewed these as nursing or medical issues and not ones of rehabilitation. Secondly, individuals may not have felt comfortable discussing such personal and sensitive issues during the initial contacts with clinical staff. In turn, therapists may also feel that these issues are outside their immediate circle of intervention and comfort level.

### *COPM scores*

Law *et al*<sup>8</sup> have reported that change scores over 2 represent clinically important change. Both the COPM performance and COPM satisfaction change scores (both 4.6) in this study exceeded this benchmark, suggesting that the COPM is a sensitive measure of an individual's perception of occupational performance following an SCI. Other studies have reported clinically significant levels of change in both the COPM performance and COPM satisfaction, however not to the degree that was found in the present study.<sup>14,19</sup> These studies have involved shorter rehabilitation stays and included individuals with a range of diagnoses and varied treatment settings.<sup>14,19</sup> The participants in this study, by nature of being in the relative early stages of injury and having initially low functional levels, were likely able to experience a greater level of change than other studies where the participants had less acute or less severe injuries.

The COPM was designed to identify occupational performance issues on initial administration with re-evaluation of these same issues performed on reassessment. Therefore, early administration of the COPM will identify issues that individuals have difficulties with the early phase of rehabilitation. However, it is likely that other problems and issues arise as rehabilitation progresses and discharge becomes a reality. As reassessment did not involve the identification of new occupational performance problems, the evolving issues of the individual failed to be captured in a structured, client-centred format.

Early administration of the COPM may also be an issue with scoring.<sup>15</sup> Individuals may not have had the opportunity to perform some of their identified issues, therefore scoring performance and satisfaction may be difficult, with scores possibly being inflated or deflated. The use of only one reassessment at the time of discharge may also be problematic. It is difficult to know when and if the problems were resolved. The large change scores found in this study suggest that the issues were addressed; however, it may not truly reflect individuals' overall impression of their level of performance and satisfaction if other problems that have emerged are not accounted for.

Therefore, the addition of a midpoint evaluation could be used to score initially identified problems, thus helping to identify when and if problems were adequately addressed. Secondly, a midpoint assessment would provide the opportunity for individuals to generate a new list of problems more accurately reflecting the evolving rehabilitation process.

#### *Relationship between FIM and COPM scores*

A fair relationship was found between the change scores of the COPM performance and satisfaction and the FIM ( $r = 0.364$  and  $0.497$ ,  $P < 0.05$ , respectively). These findings suggest that people with SCI report increased levels of perceived performance and satisfaction with their abilities when there is a positive change in their functional level.

Since the COPM involves an individual's perceived level of performance and satisfaction, scores do not necessarily reflect an actual physical ability or independence level, as do FIM scores. Some individuals with an SCI may not regain physical independence, but can regain independence with support from caregivers. Hence, individuals could achieve a full score on the COPM, but might not on the FIM. The fair correlations suggest that the COPM evaluates different aspects of an individual's function than the FIM. These findings provide initial support for the use of the COPM in individuals with an SCI as a unique measure of function. Furthermore, the use of such client-centred outcome measures may facilitate active involvement of patients and enhance satisfaction with the rehabilitation process, although further research is needed to test these hypotheses in the SCI population.

Although no study has examined the relationship between the COPM and FIM in individuals with an SCI, Chan and Lee<sup>16</sup> reported no significant relationship between the COPM satisfaction and the FIM on either admission or discharge and only a low, but significant relationship between the COPM performance and FIM at discharge ( $r = 0.32$ ,  $P < 0.05$ ). Their sample comprised over 75% of subjects with orthopaedic problems, whose rehabilitation was likely focused on recovery to full or near-full function. In contrast, an SCI involves a life long disability with low functional levels observed at the onset of rehabilitation.

One limitation of our study is that it includes participants from only one rehabilitation programme, which may limit the generalizability. However, the issues reported here are likely similar to those that would be reported by individuals with an SCI at other rehabilitation facilities. A second limitation is the small sample size. A larger sample size would have enabled the researchers to examine occupational performance problems by subcategories, such as injury level.

Previous studies using the COPM have examined occupational performance issues identified at one point in time, typically admission, with a one-time reassessment of these same problems at discharge. Future studies where the COPM is used to generate ongoing

problem lists would provide a picture of how occupational performance problems evolve over the course of treatment.

## Conclusions

The study provides initial support for the use of the COPM in a spinal cord sample, with clinically important change scores found for both COPM satisfaction and COPM performance. Given the long rehabilitation process following an SCI the use of a client-centred assessment, such as the COPM, is one step in adopting a client-centred approach as a means of enabling the individual to become an 'expert' in their own care and function.

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