

**COMMUNITY PARTICIPATION FOR
PEOPLE LIVING WITH SPINAL CORD INJURY
IN THE TSHWANE METROPOLITAN AREA**

A thesis submitted to the physiotherapy department at the University of Pretoria
in partial fulfilment of the requirements for the degree PhD Physiotherapy



CANDIDATE: DJ MOTHABENG

Student no: 9523797

SUPERVISOR: DR. CA EKSTEEN

CO-SUPERVISOR: PROF. M WESTAWAY

UNIVERSITY OF PRETORIA

JANUARY 2011



DEDICATION

This thesis is dedicated to my late father, Mr Matthews Mabudushane Moswane, who always encouraged his children to work hard and reach for the stars.

'Thanks dad, for all your support and encouragement

– I so wish you were here to see this in person.

You are and will always be PAPA NUMBER ONE!



DECLARATION

I declare that “An Assessment Of Factors Influencing Community Participation For People Living With Spinal Cord Injury In The Tshwane Metropolitan Area” is my own work, and that it has not been submitted for any degree or examination in any other university. All the sources I have used or quoted have been indicated and acknowledged by means of complete references.

DJ Mothabeng

Signature November 2010

Dr. CA Eksteen

Witness.....

STUDY PUBLICATIONS

The following publications emanated in preparation for and during the course of the study:

Published:

Mothabeng DJ, Malinga CP, Van der Merwe CB, Qhomane PT, Motjotji SN (2007): The views of patients with Spinal cord injuries on their rehabilitation experience. *South African Journal of Physiotherapy 63 (3): 22 – 25*

Mothabeng DJ (2007): A perspective on Disability and Rehabilitation. *South African Journal of Physiotherapy 63 (1): 32 – 34*

Submitted for publication:

Mothabeng DJ Factors influencing the participation of people living with Spinal cord injuries in physical activity. *Submitted to: South African Journal of Physiotherapy*

Mothabeng DJ, Measurement in Rehabilitation – a perspective. *Submitted to: Journal of Community and Health Sciences*

Mothabeng DJ, Eksteen CE and Westaway M. Psychometric validation of the Return to Normal Living Index as a measure of participation for people living with spinal cord injury in South Africa. *Submitted to the Journal of Physiotherapy Science.*

Mothabeng DJ, Eksteen CE and Westaway M. Socio-demographic correlates of community participation in people living with spinal cord injury in South Africa. *Submitted to the Disability and Society Journal*

Abstract

Background and Purpose:

People living with SCI (PLWSCI) have to cope with various challenges when they return home after institutionalized rehabilitation, especially with integrating back into and participating in their communities. To date no study has been conducted in South Africa to empirically measure community integration or to evaluate factors affecting the community integration of PLWSCI. The purpose of the study was to investigate factors influencing the community participation of PLWSCI after rehabilitation.

Methodology:

A cross-sectional, analytical research design employing both qualitative and quantitative approaches was used.

Data collection

Phase one: Participants were identified from the databases of two rehabilitation centers, and the snow balling technique. Data were collected by implementing: the socio-demographic and injury profile (SDIP), the Return to Normal Living Index (RNLI), the Spinal Cord Injury Measure – version II (SCIM II) and the Craig Hospital Inventory of Environmental Factors – short form (CHIEF-SF).

Phase two: In-depth face to face interviews were conducted with a purposely selected sample group from participants of phase one of the study to determine how participants perceive their community participation.

Data Analysis:

Phase one: Data were analyzed using version 17 of the Statistical Package for the Social Sciences (SPSS 17). Descriptive statistics, T- tests, Pearson product-moment correlation coefficients and one way analysis of variance (ANOVA), with Bonferroni adjustments for multiple comparisons, was done to examine demographic characteristics and participants' community participation.

Data from Phase 2 was subjected to data-reducing procedures using qualitative techniques.

Results – Phase One

One hundred and sixty PLWSCI (134 males and 26 females) from the Tshwane metropolitan area participated in this phase of the study. The participants were predominantly young, male, unemployed and single and their major cause of SCI was road traffic accidents, which accounted for 71% of the injuries.

The participants' satisfaction with their community participation was generally low, only 20% expressed satisfaction with their community participation. Satisfaction with community participation was significantly associated with the participants' race, level of education, employment, educational qualifications, years of living with SCI, level of SCI, health complications, perceived health status, functional ability and perceived environmental factors such as physical (structural and geographic) barriers and lack of transport.

Results – Phase 2

Fifteen PLWSCI participated in interviews. Two themes influencing participation were identified from the interview transcripts: Personal factors (coping skills, rehabilitation experience, future aspirations, personal needs, psycho-emotional issues and meaningful use of time) and Environmental factors (attitudes of others, social support and accessibility issues).

Conclusion

The results of the two phases revealed that community participation of PLWSCI was mainly related to three major categories of factors: personal factors, disability-related factors and environmental factors. Satisfaction with community participation was greater in participants who had been living with SCI for longer periods, had more years of basic education, were not black Africans, lived in

suburbs, and were employed. A positive outlook on life and engagement in creative activities during free time enhanced community participation.

Disability-related factors included level of SCI, functional ability and perceived general health influenced satisfaction with community participation.

Community participation was greater in participants who experienced fewer environmental barriers. “Attitudes of members of society”, “accessibility of the environment” and “social support” influenced the participants’ satisfaction with community participation.

A framework for facilitating community participation of PLWSCI was developed. Strategies to be implemented by various multi-sectoral stakeholders to enhance community participation are proposed.

Keywords: spinal cord injury, community participation, environmental factors, personal factors, socio-demographic factors

ACKNOWLEDGEMENTS

Firstly, I would like to thank my Lord and saviour Jesus Christ, for being with me throughout my challenging years of study. Without Him I can do nothing. This thesis is testimony that nothing is impossible with God. To Him is the glory!

I would like to thank my supervisors Dr Carina Eksteen and Prof Margaret Westaway for their guidance, support, encouragement and commitment during my years of study. I extend my sincere thanks to my head of department Prof. Tanya van Rooijen and colleagues, who were a source of encouragement throughout. '*Julle rock kollegas*' and I am blessed to be a member of this department. I want to motivate those of you still in this 'PhD battle' to continue in it, the end is almost near.

Most important, special thanks to my family for support and understanding through the good and bad times, and for sacrifices they made during my study period. I extend a special word of thanks to my daughter Lerato; who helped a lot with the typing of this thesis.

I would like to extend my sincerest gratitude to the School of Health Care Sciences in the faculty of health Sciences, University of Pretoria; and the Research foundation of the South African Society of Physiotherapy for providing the seed funding for this study.

Last but not least, thanks to all the people living with spinal cord injury who participated in this study, and the management of 'Just at Meulmed, and the Tshwane Rehabilitation centre for providing the contact details of prospective participants. Without your consent, there would have been no study.

May the Almighty God *who is able to do exceedingly abundantly above all that you can think or imagine* (Ephesians 3:20) bless you all.



CONTENTS

TITLE PAGE	i
DEDICATION	ii
DECLARATION	iii
THESIS PUBLICATIONS	iv
ABSTRACT	v
ACKNOWLEDGEMENT	x
TABLE OF CONTENTS	xi
LIST OF TABLES	xviii
LIST OF GRAPHS	xxi
LIST OF APPENDICES	xxii
PREFACE TO THE STUDY	xxiii

TABLE OF CONTENTS

CHAPTER 1:	INTRODUCTION	1- 32
1.1	INTRODUCTORY ORIENTATION	1
1.2	BACKGROUND TO THE STUDY	2
1.2.1	Disability and Spinal Cord Injury	2
1.2.2	The rehabilitation of people living with spinal cord injury	3
1.2.3	Stages/levels of rehabilitation	5
1.2.4	Spinal cord injury rehabilitation in South Africa	11
1.3	PROBLEM STATEMENT	14
1.3.1	The challenges faced by PLWSCI observed by the researcher	14
1.3.2	Limited research on SCI rehabilitation in RSA	14
1.4	JUSTIFICATION OF THE STUDY	15
1.4.1	The importance of research on participation	15
1.4.2	The unique context of PLWSCI in South Africa	16
1.5	RESEARCH QUESTIONS	16
1.6	RESEARCH FRAMEWORK	17
1.7	AIMS AND OBJECTIVES	21
1.7.1	Objectives of the study	21



1.8 STUDY METHODOLOGY	22
1.8.1 Research approach	22
1.8.2 Research setting	22
1.8.3 Participant selection	22
1.8.4 Data collection	23
1.8.5 Data analysis	23
1.9 SIGNIFICANCE OF THE STUDY	25
1.9.1 The physiotherapy profession	25
1.9.2 The South African Department of Health	26
1.9.3 People living with Spinal Cord Injury	27
1.10 SCOPE OF THE STUDY	28
1.11 TERMINOLOGY	29
1.11.1 Disability	29
1.11.2 Spinal Cord injury	29
1.11.3 People Living with Spinal Cord Injury (PLWSCI)	30
1.11.4 Community participation	30
1.11.5 Rehabilitation	30
1.12 OUTLINE OF THESIS CHAPTERS	30

CHAPTER 2:	LITERATURE REVIEW	33 - 78
-------------------	--------------------------	----------------

2.1 INTRODUCTION	33
2.2 EPIDEMIOLOGY OF SPINAL CORD INJURY	36
2.2.1 Incidence and prevalence of SCI	36
2.2.2 Aetiology of Spinal Cord Injury	37
2.2.3 Life expectancy of people living with Spinal Cord Injury	38

2.3 BACKGROUND TO THE CONCEPTUAL FRAMEWORK	39
2.3.1 Evolution of the WHO model - International Classification of Functioning Disability and Health (ICF)	40
2.3.2 Components of the ICF	42
2.3.3 Summary – background to the conceptual framework	45
2.4 FACTORS INFLUENCING THE COMMUNITY PARTICIPATION OF PEOPLE LIVING WITH SPINAL CORD INJURY	45
2.4.1 The influence of factors in the ‘body structure and function’ component on community participation	46
2.4.2 The influence of functional activities on community Participation	53
2.4.3 The influence of personal factors on community participation	55
2.4.4 The influence of environmental factors on community Participation	58
2.4.5 Summary – factors influencing community participation	61
2.5 SOUTH AFRICAN RESEARCH ON THE COMMUNITY PARTICIPATION OF PLWSCI	62
2.6 MEASURING COMMUNITY PARTICIPATION FOR PLWSCI	63
2.6.1 Measurement instruments at body structure and function level	63
2.6.2 Measurement instruments at activity level	64
2.6.3 Measurement instruments at participation level	66
2.6.4 Instruments for measuring personal factors	76
2.6.5 Instruments for measuring environmental factors	76
2.7 SUMMARY OF THE LITERATURE REVIEW	77



CHAPTER 3:	METHODOLOGY	79 - 112
3.1	INTRODUCTION	79
3.2	SECTION A: METHODOLOGY AS ORIGINALLY PLANNED	80
3.2.1	Introduction	80
3.2.2	Research aim	80
3.2.3	Research Approach	81
3.2.4	Research Setting	81
3.2.5	Study Population	82
3.2.6	Phase 1 of the methodology as planned	83
3.2.7	Phase 2 of the methodology as planned	92
3.2.8	Phase 3 of the methodology as planned	101
3.2.8	Summary of the methodology as planned	102
3.3	SECTION B: PILOT STUDY	102
3.3.1	Phase 1- of the pilot study	102
3.3.2	Phase 2 – pilot study	106
3.3.3	Phase 3 of the Pilot study	107
3.3.4	Summary of methodological changes following the pilot study	107
3.4	METHODOLOGY AS IMPLEMENTED IN THE MAIN STUDY	107
3.4.1	Phase 1 – main study	108
3.4.2	Phase 2 - main Study	110
3.5	ETHICAL CONSIDERATIONS	111
3.6	SUMMARY	112

CHAPTER 4: RESULTS - PHASE 1		113 - 157
4.1	INTRODUCTION	113
4.2	SECTION1: SOCIO-DEMOGRAPHIC AND INJURY PROFILE OF PARTICIPANTS	113
4.2.1	Socio-demographic characteristics of the sample	113
4.2.2	Spinal cord injury and general health profile	122
4.2.3	Summary of the socio-demographic and Spinal Cord Injury data	126
4.3	SECTION 2: STATISTICAL ANALYSES OF THE INSTRUMENTS	127
4.3.1	Return to Normal Living Index (RNLI)	129
4.3.2	Spinal Cord Independence Measure (SCIM II)	133
4.3.3	Craig Hospital Inventory of Environmental Factors – short form (CHIEF – SF)	139
4.3.4	Summary – instrument analysis	141
4.4	RELATIONSHIPS BETWEEN SOCIO-DEMOGRAPHIC DATA, SCI DATA AND THE MEASURING INSTRUMENTS	141
4.4.1	Age, years of living with SCI, years of basic education and the four instruments	141
4.4.2	Chi square tests of independence	143
4.4.3	Interrelationships among the measuring instruments	145
4.4.4	Mean comparisons across the measured variables	146
4.5	SUMMARY OF PHASE 1 RESULTS	157



CHAPTER 5:	DISCUSSION OF PHASE 1 RESULTS	159 - 184
-------------------	--------------------------------------	------------------

5.1	INTRODUCTION	159
5.2	THE EPIDEMIOLOGY OF SCI	159
5.2.1	Socio-demographic profile	160
5.2.2	Spinal Cord Injury and general health profile	168
5.3	RELIABILITY AND VALIDITY OF THE MEASURING INSTRUMENTS	175
5.3.1	The Return to Normal Living Index (RNLI)	175
5.3.2	The Spinal Cord Independence Measure II (SCIM II)	176
5.3.3	The Craig Hospital Inventory of Environmental Factors – short form (CHIEF-SF)	178
5.4	FACTORS ASSOCIATED WITH COMMUNITY PARTICIPATION	179
5.4.1	Personal factors	179
5.4.2	Disability Related Factors	180
5.4.3	Environmental factors	182
5.5	SUMMARY	184

CHAPTER 6:	RESULTS AND DISCUSSION – PHASE 2	185 - 211
-------------------	---	------------------

6.1	INTRODUCTION	185
6.2	DEMOGRAPHIC PROFILE OF THE SAMPLE	185
6.3	DISCUSSION OF THE EMERGENT THEMES	187
6.3.1	Personal factors	188
6.3.2	Environmental factors	202
6.4	SUMMARY	211

CHAPTER 7: DISCUSSION OF THE STUDY FINDINGS, CONCLUSION, LIMITATIONS AND RECOMMENDATIONS	212 - 238
---	------------------

7.1	INTRODUCTION	212
7.2	SUMMARY OF THE RESULTS OF PHASE 1 OF THE STUDY	213
7.2.1	Objectives of Phase 1 of the study	213
7.2.2	Results of the quantitative phase of the study	213
7.3	SUMMARY OF THE RESULTS OF PHASE 2 OF THE STUDY	214
7.3.1	Objectives of Phase 2	214
7.3.2	Results of the qualitative phase of the study	214
7.4	HOLISTIC DISCUSSION OF THE STUDY FINDINGS	215
7.5	A CONCEPTUAL FRAMEWORK FOR ENHANCING THE COMMUNITY PARTICIPATION OF PEOPLE LIVING WITH SPINAL CORD INJURY	217
7.6	RECOMMENDED STRATEGIES FOR FACILITATING THE COMMUNITY PARTICIPATION OF PLWSCI	220
7.7	ROLES OF VARIOUS STAKEHOLDERS IN FACILITATING COMMUNITY PARTICIPATION OF PLWSCI	223
7.7.1	Role of physiotherapists and other rehabilitation professionals in facilitating the community participation of PLWSCI	224
7.7.2	Role of the Government and the private sector in facilitating the community participation of PLWSCI	228
7.7.3	Role of the family, peer PLWSCI and the community at large in facilitating the community participation of PLWSCI	234
7.8	LIMITATIONS OF THE STUDY	234



7.9	RECOMMENDATIONS	235
7.9.1	Recommendations for further research	235
7.9.2	Recommendations for preventing causes and complications of SCI	236
7.10	CONCLUSION AND SIGNIFICANCE OF THE STUDY	237
7.11	SUMMARY	238
	REFERENCES	239
	APPEDICES	272

LIST OF TABLES

Table 1.1	Stages and levels of rehabilitation	6
Table 2.1	Literature search strategy	34
Table 2.2	Functional abilities of PLWSCI	54
Table 2.3	The effects of demographic factors on community participation	57
Table 2.4	South African studies on the community participation of PLWSCI	61
Table 2.5	Instruments for measuring the activity level of PLWSCI	66
Table 2.6	The Participation Team's comparison of participation measures (Source: Participation Team, 2005)	69
Table 3.1	Guide to key participant selection	94
Table 3.2	The advantages and disadvantages of an interview (Brink, 2002)	96
Table 3.3	Interview guide	97
Table 3.4	Strategies used to ensure trustworthiness of findings (adapted from Van Der Walt et al., 2009)	101
Table 3.5	Demographic profile of participants in pilot study	103
Table 4.1	Participant age at time of injury	113
Table 4.2	Descriptive statistics of the RNLI	128
Table 4.3	Alpha factoring for the RNLI	132
Table 4.4	Descriptive statistics of the SCIM II	134
Table 4.5	Factor analysis of the SCIM II	136
Table 4.6	Descriptive Statistics CHIEF-SF	139
Table 4.7	Inter-relationships among age at time of injury, years of basic education, Years living with SCI and different measurement instruments	141
Table 4.8	Cross tabulation of employment by residential area	142
Table 4.9	Cross tabulation of current employment by previous Employment	143

Table 4.10	Cross tabulation of employment by perceived health rating	143
Table 4.11	Cross tabulation of perceived health rating by gender	144
Table 4.12	Interrelationships among the measuring instruments	144
Table 4.13	Means, standard deviations and group statistics according to Employment	146
Table 4.14	Means, standard deviations and group statistics according to Race	147
Table 4.15	Means, standard deviations and group statistics according to marital status	148
Table 4.16	Means, standard deviations and group statistics according to level of injury	148
Table 4.17	Means, standard deviations and group statistics according Residential area in relation to the four measures	150
Table 4.18	Means, standard deviations and group statistics according to source of income in relation to the four measures	151
Table 4.19	Means, standard deviations and group statistics according to Level of injury in relation to the four measures	152
Table 4.20	Means, standard deviations and group statistics for perceived health in relation to the four measures	153
Table 4.21	Results of the stepwise multiple regression analyses with the RNLI as a dependent variable.	154
Table 6.1	Demographic profile of the 15 interviewees	183
Table 6.1	Themes and sub-themes	184
Table 7.1	Factors influencing community participation	214
Table 7.2	Strategies for facilitating the community participation of PLWSCI.	218

LIST OF FIGURES

Figure 1.1	The WHO model - ICF (Source: WHO, 2002)	18
Figure 1.2	Factors influencing participation in the ICF framework	19
Figure 1.3:	Conceptual framework for the study	20
Figure 1.4	Overview of the methodology	26
Figure 2.1	Outline of aspects of the literature review	35
Figure 2.2	Evolution of the WHO model – from ICIDH to ICF	42
Figure 2.3	Risk factors for pressure ulcer development	51
Figure 3.1	Map of the Tshwane Metropolitan area in South Africa	82
Figure 4.1	Age of participants at the time of the study	114
Figure 4.2	Gender distribution in the different age categories.	115
Figure 4.3	Marital status of participants at the time of the study	115
Figure 4.4	Participants' level of basic education	116
Figure 4.5	Post basic qualifications of participants	117
Figure 4.6	Residential areas of participants	117
Figure 4.7	Living arrangements of participants	118
Figure 4.8	Employment status vs. age of participants	119
Figure 4.9	Participants' source of income (n = 160)	120
Figure 4.10	Number of years of living with SCI	121
Figure 4.11	Cause of SCI in participants	121
Figure 4.12	Level and completeness of SCI	122
Figure 4.13	Reasons for re-hospitalisation following discharge from rehabilitation	123
Figure 4.14	Participants' perceived rating of their health	124
Figure 4.15	Health problems reported by participants Summary of the socio-demographic and Spinal Cord Injury data	125
Figure 4.16	Participants' distribution in the RNLI categories	129
Figure 4.17	Scree plot of the Eigen values from the factor analysis of the RNLI	131



Figure 4.18	Scree plot of the Eigen values from the factor analysis of the SCIM	135
Figure 7.1	A framework of community participation for PLWSCI	216

LIST OF APPENDICES

Appendix A	Ethical Clearance Certificate	272
Appendix B	Approval of Amendment	273
Appendix C	Participant Information Leaflet	274
Appendix D	Consent Form	277
Appendix E	Permission to use the CHIEF and CHART	279
Appendix F	Permission to use the SCI database at the Tshwane Rehabilitation Centre	280
Appendix G:	Permission to use the SCI Database at the Meulmed Rehabilitation Centre	281
Appendix H	Socio-Demographic And spinal cord injury Profile	282
Appendix I	The Reintegration To Normal Living Index (RNLI)	284
Appendix J	Spinal Cord Independence Measure	285
Appendix K	The Craig Hospital Inventory Of Environmental Factors – Short Form	288
Appendix L	Email regarding PUTCO disability bus service	289
Appendix M	Themes and sub-themes generated	290
Appendix N	Transcribed and translated interview	300
APPENDIX O	Declaration by language editor	304

PREFACE TO THE THESIS

The preface to this thesis is an anecdotal case study based on a true story. The name and other identifying features of the individual have been changed to protect the individual, in keeping with ethical principles. This preface is intended to highlight the plight of people living with disabilities, specifically those living with spinal cord injuries, thus illuminating the rationale behind this study.

Melita is a 34 – year old single mother who used to live in a two – roomed rented shack in Mamelodi, a predominantly black township in the North-Eastern part of the Tshwane metropolitan area. She has two daughters aged eight and 12 years respectively, living with her mother in a semi-rural village 100km north of Tshwane. She was involved in a car accident a year ago, when the overloaded taxi she had boarded to work overturned and she sustained injuries to her cervical spine resulting in complete C6 Quadriplegia. Prior to her accident, she was a casual labourer, working as a domestic worker in the suburbs near her township twice a week, on Tuesday and Thursdays. The rest of the week she sold vegetables in the street of her township as a means of income generation. These two ‘jobs’ sustained her family for three years prior to her injury.

After the accident, Melita was admitted to a local hospital where her injuries were stabilized. Two weeks later she was referred to a spinal unit where she underwent rehabilitation. She was fully rehabilitated and after six months in the rehabilitation unit, she discharged home in a wheelchair. She did not qualify for compensation through the Road Accident Fund because the taxi she was injured in was involved in a ‘single-vehicle’ accident.

Because she was not working for two months, she could not afford to pay the rent for her shack anymore and had to go and live with her children and her mother in the village. She has applied for a disability grant, and is waiting for the outcome – she can barely make ends meet. The question is: (1) was her family and the community at large ready to receive and live with her in her condition and (2) was she physically, mentally and otherwise prepared to face life out in the community? Was the community Prepared in terms of accessibility to accommodate PLWSCI such as Melita?

Melita's wish was 'to work for my children and educate them so they can have a better future'. But what kind of work can an unskilled and uneducated tetraplegic woman expect to find in the rural village? In the deep rural villages, people with severe disabilities are looked down upon as they are seen as a curse. Her aging mother could not look after her, so Melita spent most of the time in bed in her mother's house. Melita was kept indoors while her little girls were fortunately being looked after by relatives. Within two months after going to the village, Melita was re-admitted to hospital with severe pressure ulcers and major depression. She did not make it..... how many others out there are like her?

Melita's story is but one of many, with different causes and trajectories. The psychosocial consequences of a serious disability like SCI which include losing employment are too enormous. Even if Melita had lived long enough to receive the disability grant of R1050 per month, how far would it have stretched to sustain her? One wonders who is failing who in these cases. Are the health professionals not adequately equipping

PLWSC for life outside the hospital during rehabilitation, or are the social circumstances just impossible to survive with a serious SCI?

Melita's life story also poses a number of questions for rehabilitation policy and practice. Was her fate dictated by society's non-preparedness to receive her? Was she adequately prepared for life in the community? If she was completely rehabilitated, why did she not cope with participating in normal life roles in the community? This thesis takes us through a journey that attempts to unravel these questions systematically in an attempt to provide solutions for similar and other situations.

In this study, the community participation of PLWSC after rehabilitation is investigated. It is hoped that this study will provide an understanding of the community participation challenges experienced by people living with spinal cord injury. It also envisaged that the study will highlight the resources and services needed to improve community participation for these people with specific reference to barriers and facilitators. The information gained from this study is anticipated to facilitate the planning, implementation and evaluation of programs to guide rehabilitation professionals, planners and policymakers in addressing the issues raised by the study.