THE RELATIONSHIP BETWEEN PAIN AND SLEEP IN SPINAL CORD INJURY PATIENTS

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Dissertation submitted to the Faculty of Health Sciences, University of the Witwatersrand, in fulfilment of the requirements for the degree of Master of Science in Medicine

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DECLARATION

I, Diana Subramony Pillay declare that this dissertation is my work. It is being submitted for the degree of Master of Science in Medicine in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

_____________________.

Date
ABSTRACT

Spinal cord injury (SCI) is a devastating injury affecting many South Africans.

The purpose of the study was to investigate the relationship between SCI pain and sleep issues during acute inpatient rehabilitation. Seventeen participants were recruited. There were 2 interviews in the study; the 1st interview was done on the day participants were recruited. The 2nd interview was conducted a day before participants were discharged. The time elapsed between the first and second interview was 7.9±2.4. The patients were discharged from the Auckland Rehabilitation hospital (Hope ward). In the 2nd interview the questionnaires for pain, sleep and mood measures were repeated, and two additional questions were asked and the answers recorded for analysis of content.

The key findings were; majority of the participants were Black, male (82%). The main cause of traumatic SCI was motor vehicle accident (59%). The common sites of injury were in the legs and neck/shoulder areas in both assessment (admission and discharge). The verbal descriptors that were commonly chosen in both assessments were, “sharp, shooting and tight.” Below level neuropathic pain, followed by musculoskeletal pain were the common types of pain reported. Pain interference was reported greatest in sleep and on average pain intensity was moderate (4-6 on 11-point Numerical Rating Scale). Strong correlations and positive relationships between Pain Catastrophizing Scale and subscales, and with the
Pittsburgh Insomnia Rating total scale and subscales were reported in this study. Environmental factors were reported to affect sleep. A high incidence of Restless Leg Syndrome was reported in this study (24%). Depression was commonly reported by participants in both assessments.

No significant association was found for the measures of sleep, Restless Leg Syndrome, depression and quality of life and the injury characteristics that were assessed. Significant associations were found at the 95% confidence levels for pain scores and injury characteristics (completeness of injury, level of injury and pain sites).

Further studies in this area of pain and sleep management is warranted. It is important that clinicians and researchers in this area find appropriate management for secondary issues which have a severe impact on the daily activities of SCI people, decreasing their quality of life.

**Key words**: SCI pain, sleep disturbances, mood
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Last but not least a special thanks to the patients of the Hope ward that participated in this study, your interest and willingness to assist me in gaining knowledge of the relationship between SCI pain and sleep in the early stages of your injury is highly appreciated.
RESEARCH OUTPUTS

07th Canadian IBRO-School Neuroscience, Montreal, QC & Toronto May 13-21 D Pillay: Oral Presentation: The relationship between pain and sleep in spinal cord injury in a South African population

7th Annual Canadian Neuroscience Meeting 2013, Toronto May 22-24 D Pillay: Poster presentation: The relationship between pain and sleep in the acute phase in spinal cord injury patients

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Abbreviations

SCI  Spinal cord injury
RLS  Restless-leg syndrome
AISA American Spinal Cord Injury Association
NSCISC National Spinal Cord Injury Statistical Centre
QASA Quadpara Association of South Africa
ISCIPC International Spinal Cord Injury Pain Classification
IASP International Association for the Study of Pain
REM  Rapid eye movement
NREM Non-rapid eye movement
EEG  electroencephalogram
TMD  Temporomandibular disorder
MPQ  McGill Pain Questionnaire
NWC  Number of words chosen
PPI  Present pain intensity
PPI(now) Present intensity now
PRI  Present rating index
BPI  Brief Pain Inventory Interference Scale
PCS  The Pain Catastrophizing Scale
PIRS  The Pittsburgh Insomnia Rating Scale
IRLSSG The International Restless Leg Syndrome Study Group.
CES-D Centre for Epidemiological Studies-Depression Scale
IQR  Inter-quartile range
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<th>Definition</th>
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<tr>
<td>LOI</td>
<td>Neurological level of injury</td>
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<tr>
<td>NRS</td>
<td>Numerical Rating Scale</td>
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<td>PSQI</td>
<td>Pittsburgh Sleep Quality Index</td>
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