ANALYSIS OF EXERCISE PROTOCOL ON FUNCTIONAL STATUS, HEALTH RELATED QUALITY OF LIFE AMONG SPINAL CORD INJURY
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Abstract—Spinal Cord Injury is damage to the spinal cord that results in a loss of function such as mobility or feeling. Frequent causes of damage are trauma and disease. The aim of present study is to assess the effect of physical therapy on Health related Quality of Life (HR-QOL) among persons with spinal cord injury in relation to physical health, psychological health, social relationship, and environmental dimensions with orientation to Indian context. The objectives of the study was to describe the efficacy of physical therapy to respondents, to measure the Health related Quality of life (HR-QOL) of persons Spinal Cord Injury and to evaluate the relationship between socio demographic data, clinical data and Quality of has been considered the “Descriptive research design” for the study. Purposive sampling design was selected.

Keywords - Spinal Cord Injury, Health, physical therapy

Introduction
Spinal cord injury is a traumatic harm to the spinal cord that can result in alternation of normal motor, sensory and anatomic function. The Central Nervous System – CNS consists of the brain and spinal cord. The principle roles of the CNS are to integrate and coordinate incoming and outgoing neural signals and to carry out higher mental function, such as thinking and learning. Spinal cord is an extension of the brain, a thick bundle of nerve fibers from which individual nerves branch off to connect your brain with your muscles, skin and internal organs. The spinal cord carries messages from the brain to the different parts of the body and also from the different parts of the body to the brain. Brain monitors the entire physical functioning. The vertebral column (Spinal column) is composed of 33 vertebrae (Spine), including 7 cervical (Neck Region), 12 thoracic (Chest region), 5 Lumbar (Lower back region) and 5 inferiorly fused vertebrae that form the sacrum and 5 coccygeal (Tale bone region). The spinal column not only bears the weight of the body, but it also allows motion between body parts and serves to protect the spinal cord from injury.

Causes of spinal cord injury
Spinal cord trauma can be caused by a number of injuries to the spine, including:

- Assault
- Falls
- Gunshot wounds

- Industrial accidents
- Motor vehicle accidents
- Sports injuries (particularly diving into shallow water).

Direct injury, such as cuts, can occur to the spinal cord, especially if the bones or the disks have been weakened. Fragments of bone (for example, from broken vertebrae, which are the spine bones) or fragments of metal (such as from a traffic accident or gunshot) can cut or damage the spinal cord.

Direct damage can also occur if the spinal cord is pulled, pressed sideways, or compressed. This may occur if the head, neck, or back are twisted abnormally during an accident or intense chiropractic manipulation.

Bleeding, fluid buildup, and swelling can occur inside or outside the spinal cord (but within the spinal canal). The buildup of blood or fluid can press on the spinal cord and damage it.

Most spinal cord trauma happens to young, healthy individuals. Men ages 15 - 35 are most commonly affected. The death rate tends to be higher in young children with spinal injuries.

Risk factors include:
- Participating in risky physical activities
- Not wearing protective gear during work or play
- Diving into shallow water

Older people with weakened spines (from osteoporosis) may be more likely to have a spinal cord injury. Patients who have other medical problems (stroke or prostate cancer, for example) that make them more likely to fall may also be more susceptible.

2 Literature Review

Sudden-onset disability affects a wide range of life activities, such as problems with mobility, sexual function, bowel and bladder control, infections, and pressure sores. Such disability forces individuals to cope with challenges related to work, family, independence, societal reactions towards them, negative attitudes as well as discrimination (Bishop, 2005; Chase, Cornille, & English, 2000; An individual with paraplegia or quadriplegia has to cope with changes in their social roles and interactions. In addition, they have to cope with a changed body image, find new ways of doing things, and accept increased dependence on others for the performance of familiar tasks (Dijkers, 1996). Thus, spinal cord injury requires life-long physical, psychological, social, and environmental adaptation. It impacts on every area of an individual’s life and affects their quality of life by reducing opportunities for satisfaction as well as control in personally important areas of life (Bishop, 2005). Dijkers, 1996; Lustig, 2005).

Several studies have been conducted to explore the concept of quality of life and to determine the factors that are perceived as essential in determining, defining, and assessing quality of life (Boswell, Dawson, & Heiningger, 1998; Budge & Österaker, 2006; Gill & Feinstein, 1994; Hammell, 2004; Lanig, Chase, Butt, Hulse, & Johnson, 1996; Manns & Chad, 2001; Raeburn & Rootman, 1996; Renwick & Frielfeld, 1996; Younghill & McCormick, 2006). These researchers concur that quality of life should be viewed from the subjective perspective of the individuals being assessed. In addition, they stress that comprehensive evaluation of quality of life should consider factors such as health, employment, material comforts, perceived control, social support, and social relationships.

Furthermore, Hampton (2004) also considers quality of life to be related to an individual’s assessment of their satisfaction with their own life. According to Bishop (2005), life satisfaction in highly valued areas of life (such as relationships with family and friends, health, physical fitness, career, and finances) is considered to have a greater influence on the evaluation of overall quality of life, compared to areas of equal satisfaction but lesser importance. For example, a married mother might view family relationships as more valuable than a single woman who views friendship as the most important area. Accordingly, the loss of a friendship might affect the quality of life of the single woman more than it would affect that of the married woman.

Thus, for a more accurate, optimum, and meaningful assessment, researchers should utilise the subjective perceptions of people with a spinal cord injury to determine the areas in life, which have the most significant influence on their quality of life, as well as the degree of importance of these areas. Such subjective measures of quality of life also enable the researcher to explore a greater range of topics related to quality of life (Bishop, 2005; Boswell et al., 1998; Budge & Österaker, 2006; Day & Jankey, 1996; Dijkers, 1996; Fabian, 1991; Gill & Feinstein, 1994; Manns & Chad, 2001; Whiteneck, 1994).

Quality of life is defined by Bishop (2005) as the subjective and personally derived measurement of overall well-being. Quality of life is assessed through the evaluation of satisfaction across a set of personally or clinically important domains in life. Intrinsic to this definition, is the assumption that overall quality of life is linked to life satisfaction (Bishop). According to the WHO Quality of life Group (WHOQOL Group) (as quoted in Miller et al., 2008), the WHO defines quality of life as the “individuals’ perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns” (p. 221). Based on the WHO’s definition of quality of life, Barbotte et al. (2001) adeptly state that quality of life is a holistic concept that is influenced by several factors. An individual’s physical health, psychological state, personal beliefs, social relationships and their relationship to significant features of their environment are all essential contributing factors to quality of life.

According to Brown, Bowling, and Flynn (2004), quality of life has been defined in macro (societal, objective) and micro (individual, subjective) terms. Macro terms include income, employment, housing, education, as well as living and environmental circumstances. Micro terms include perceptions of overall quality of life, individuals’ experiences and values, as well as well-being, happiness and life satisfaction. Brown et al. view quality of life as multidimensional with interlinked units that affect each other.

3. Research Methodology

Based on guidelines by (Terre Blanche et al., 2006) there are important characteristics that should be present in the participants of qualitative research studies. Based on the qualitative nature of this study, these guidelines were found to be of relevance and were valuable in assisting the researcher to select the research sample. The researcher thus looked for the presence of the following characteristics in all the participants.

- Each participant must have had a personal experience of the topic being researched. For the purposes of this study, the topic was spinal cord injury. Thus, all the participants should have sustained a spinal cord injury and be either paraplegic or quadriplegic as a result of the spinal cord injury.
- Participants must have the ability to describe their experiences in detail.
• Each participant must demonstrate an open attitude as opposed to a defensive attitude.

• Participants must show genuine interest in participating and they should believe that participating will have some value for them.

The researcher strived to ensure that every one of the research participants possess the above mentioned characteristics, to ensure that the information obtained from them is valid and useful as research data.

As the topic that was being researched is of a sensitive nature, semi-structured interviews were employed as the measurement instrument. Terre Blanche et al. (2006) recommend interviewing for collecting in-depth data during research. Particularly, open ended, semi-structured interviews are viewed as an effective qualitative means of gathering information. In addition, this type of interviewing is deemed the exemplary means of data collection for IPA studies.

IPA views the participants as the experiential experts and allows the participants’ maximum opportunity to tell their own stories (Smith & Eatough, 2007). The participants largely direct the semi-structured interviews and are allowed to introduce novel ideas that the researcher may not have thought of exploring, but may be of relevance to the research area. This type of interview allows the researcher to develop an interview guide, which enables the researcher to focus on a list of key topics and subtopics (Terre Blanche et al., 2006).

The interview schedule developed by Manns and Chad (2001) was adapted and utilised for the semi-structured interviews in this research. It allowed the researcher to explore aspects that were important to the participant’s lives before and after the spinal cord injury and how the spinal cord injury may or may not have affected these aspects. The interview schedule also enabled the researcher to explore the participants’ degree of life satisfaction, as well as their definition of the term quality of life.

To prevent losing control during the semi-structured interviews, the researcher made an effort to comply with the guidelines on interviewing as set out by Smith and Osborn (2006).

• The researcher made an effort not to be rushed or to rush the participant. The participants were given sufficient time to reflect and to respond after each question.

• The researcher used minimal probes such as: “How did you feel? Can you tell me more?” This was done in an effort to encourage the participants to elaborate on thoughts and feelings.

• The researcher made an effort to ask only one question at a time and to clarify aspects if the participants did not understand.

• The researcher monitored the participants’ nonverbal responses during the interview to establish the possible effect the interview might have on the participants. This was helpful in order to recognise when to probe and when to refrain.

The semi-structured interviews were recorded and transcribed. The transcriptions were prepared at a semantic level. This requires writing down all the words that were spoken, including false starts and significant pauses as well as laughs, sighs and other important features of the interview. This form of transcription was followed based on the recommendation by Smith and Osborn (2006) for transcribing semi-structured interviews for IPA. The transcriptions were then translated loosely.

In order to minimize bias from general changes due to aging in the four studies, persons above 60 years at the time of injury were excluded, as well as persons who were unable to respond to the questionnaire.

4. Result Analysis and Conclusion

Tools administered were Socio Demographic Data Sheet, Clinical Data Sheet and WHOQOL - BREF Scale (26 Item Questionnaire). Results confirmed that mean score on Quality of life of the respondents with regard to their Physical health, Psychological health and social relationship domain was at moderate level, whereas mean score on Quality of life of respondents in relation to their environmental domain was found at lower level. Majorly findings of present study also demonstrated that there was no significant difference in quality of life between different Age groups, Marital status, different Education levels, duration of Rehabilitation, Type of treatment (Surgical/ Non surgical) and between people with significant difference in quality of life between Male & Female, Duration since injury, Post injury Occupation status & Post injury monthly income status (p < 0.05).

BIBLIOGRAPHY


