



PREVALENCE OF COPING STRATEGIES AND ITS CORRELATION WITH QUALITY OF LIFE IN PERSONS WITH SPINAL CORD INJURY - A CROSS-SECTIONAL SURVEY

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ABSTRACT

BACKGROUND: The occurrence of SCI is a challenging and threatening event for individuals. Functional dependence in persons with SCI is affected which indeed affects the quality of life of the person. Leading to various challenges that is psychological and physical functioning, the persons with SCI undergo a long-term rehabilitation. Hence, leading to coping and improving functional independence and quality of life.

MATERIALS AND METHOD: This work is a questionnaire-based study, where persons with SCI were taken between age group of 18 to 80 years, both males and females were taken which were able to give their consent. The patients were both traumatic and non-traumatic while with both complete and incomplete injury. The outcome measure used was SF-12, for measuring the quality of life in persons with SCI and for coping measure the questionnaire was Spinal Cord Lesion Coping Strategies Questionnaire (SCI-CS).

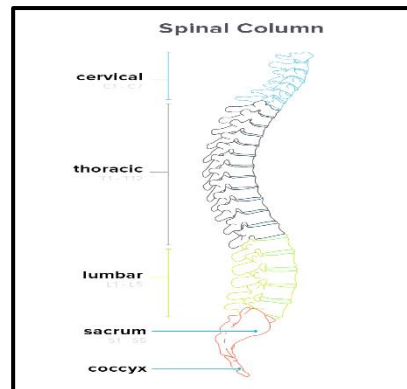
RESULT: Data of 46 participants was analysed. The participants were selected on basis of inclusion and exclusion criteria. The mean in the age group was 35.65217 years and mean of coping score was 1.521739 whereas, of SF 12 was 39.65217. Therefore, having an objective to improve quality of life is the best stimulus for coping while gaining functional independence while creating motivation and hope in the individual.

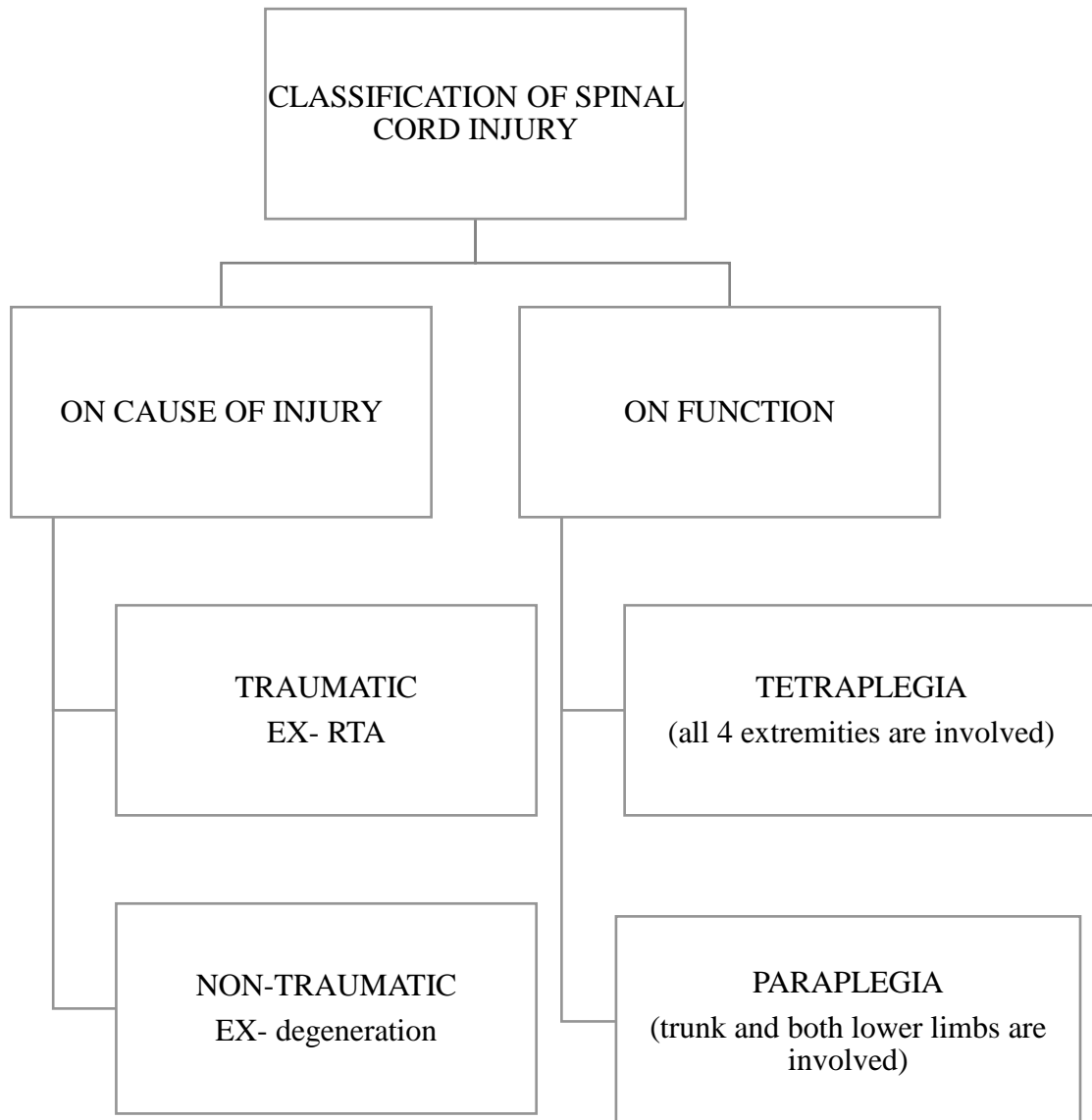
CONCLUSION: It was shown that quality of life directly hampers coping in persons with SCI. The present study concluded that coping strategies and quality of life in persons with SCI is affected in which both coping, and quality of life is hampered and both are inter-related in persons all over health.

KEYWORDS: persons with spinal cord injury, coping strategies, quality of life, SF-12 and spinal cord lesion coping strategies questionnaire.

INTRODUCTION

A spinal cord injury is trauma to spinal cord which contains white matter [ascending and descending tracts] and grey matter [sensory neuron and motor neuron] that results in paralysis of the muscles and indirectly affects sensory abilities and other body functions below the level of injury¹. According to WHO every year, overall around the world between 2,50,000 and 5,00,000 people suffer from SCI². In India, the prevalence of SCI is 0.15 million and the average annual incidence is 15,000³. The SCI classification is based on the level of sensory impairment or motor impairments; location of injury, cause of injury – Traumatic and Non traumatic¹. Traumatic Injury is when external force hits the spinal cord, for example – RTA. Non traumatic Injury is when an injury refers from an illness, degeneration, inflammation, compression from disc prolapse, bone metastasis from cancer³ or abnormal development of spinal cord. SCI patients may show body structure and functional impairments, motor and sensory impairments, autonomic dysreflexia, spastic hypertonia, cardiovascular impairments, impaired temperature control, pulmonary impairments which includes respiratory insufficiency, bowel impairments, bladder impairments, sexual dysfunction, pain, contractures, osteoporosis¹ etc.





Tetraplegia and paraplegia are the 2 main functional classifications for SCI. Tetraplegia which is caused by an area of the cervical cord, describes motor and or sensory defects of all four extremities, the trunk and the breathing muscles. When the thoracic and lumbar spinal cord is injured or cauda equina, it can cause lesions that affects the motor and or sensory function of the entire trunk and both the lower extremities. The condition is known as Paraplegia. When working with people with SCI, it is crucial for clinicians and researchers to be able to precisely asses the degree of neurological damage in the terms of motor and sensory loss. The American Spinal Cord Injury Association [ASIA] developed The International standard for Neurological Classification of Spinal Cord damage¹, where

A - Complete: No motor or sensory function is preserved in sacral segments S4-S5.

B – Sensory Incomplete: sensory but not motor function is preserved below the neurological level and includes the sacral segments S4-S5 [light touch or pin prick at S4-S5 or the anal pressure] and no motor function is preserved more than 3 levels below the motor level or either side of the body.

C – Motor Incomplete: Motor function is preserved at the most caudal sacral segments for voluntary anal contraction or the patient needs the criteria for sensor incomplete status [sensory functions at the most caudal sacral segments (S4-S5)]. And has some sparing of motor functions more than 3 levels below the ipsilateral level on either side of the body. This includes key non-key muscles functions to determine motor incomplete status.

D – Motor Incomplete: This as determined as above, with at least (half or more) of key muscles function below the single NLI having a muscle grade less than or equal to 3.

E – Normal: If sensation and motor function as tested with the ISNCSCR are graded as normal in all segments, and the patient had prior deficits, then the AIS grade is E. Someone without an initial SCI does not receive an AIS grade. The most caudal level of SCI with normal motor and sensory function on both right and left sides of the body is referred to as neurological level of injury¹.

The term “coping” refers to a person’s dynamic cognitive and behavioural responses to stress. The literature reported that accepting the situation, seeking knowledge, positive reframing, minimizing, self-trust and social trust, optimism, and positive thinking were the most widely coping mechanisms⁵. ASIA impairment grades B or C at admission are associated with the greatest increases in functional independent measure motor scores⁴. The ultimate goal of clinical and community-based therapy of SCI is to improve quality of life, which is also a significant consequence of service delivery. After SCI, QOL has been reported to be reduced. Mental health, mobility, employment, general management accessibility to the external environment, social support, and coping are all consistently linked to QOL in people with SCI. On the association between QOL and sociodemographic (age, gender and relationship status) and lesion related variables. However, contradictory findings have been observed (level

of lesion, time since injury, physical impairment and medical complications). QOL appears to vary per nation⁶.

Spinal cord injury results in sudden and profound disruption to the individual's life. Soon, this disruption creates stress in the person's life in all the aspects. The individual thereafter engages in the coping efforts to manage these stressors. Hence, a critical factor involves the coping capacity of an individual⁷. Coping strategies are important mediators of the depression in the persons with SCI. In general, any task nor problem-oriented coping is positively related to a good health indeed whereas, emotion-focused coping is negatively related to a good health. However, correlation between these in the persons with SCI is weak to moderate. Although social support might explain some of the differences in adjustments of the persons with SCI⁸.

When there is any damage to the spinal cord, it directly impairs the spinal cord thus, the patient's functional independence and quality of life is affected. Leading to various challenges i.e, psychological and physical functioning in the persons with SCI undergo a long-term rehabilitation hence, improving the functional independence and quality of life. So, developing the coping strategies is an essential tool for having less psychological distress and also hopelessness during any stressful life event. This directly helps in the adjustment of the life and also the social reintegration following the SCI⁹.

In acute phase of injury, coping reflects an adjustment to the injury and also to the demands particularly. Considering coping strategy of maintaining a fighting spirit, acceptance-based coping thereafter predicts the life satisfaction, quality of life and the emotional wellbeing. Hence, acceptance-based coping in acute phase of injury reduces the chances of depression. It is possible that persons with spinal cord injury may cope differently with the injury in the form of depression which indeed differs from person to person. The only way of coping mainly observed in spinal cord injury are acceptance of injury, maintaining a fighting spirit, and also relying on social support. Coping with the injury is only essential mediator of post-injury life adjustment which indeed contributes to the risk of depression among the persons with SCI¹⁰.

Not only can adjustment issues cause emotional misery, but they can also impair other aspects of functioning. For instance, it has been proposed that issues with self-neglect and adjustment may have an adverse effect on one's physical health and raise the possibility of developing secondary complications. Substance misuse and difficulty to have been connected, this could lead to other health issues. Long-term goal

achievement has also been linked to adjustment, those with poorer moods have been found to have more trouble finding work and participating in recreational and social activities. Therefore, it is crucial to research this area in order to better understand the coping process and to find potential interventions that could improve quality of life¹¹. Strategies for coping in persons with SCI has not been given more attention. The authors define it as a protective mechanism that includes self-talk and behaviours aimed at lessening psychological distress. Frank et al discovered that persons with SCI who answered well on the coping questionnaire had a higher likelihood of depression as compared to those who did not. More likely to be well-adjusted were those who felt ownership for their health¹².

1.1 NEED OF STUDY

To find out the prevalence of coping strategies and its correlation with QOL in persons with SCI. One of the determinants in persons with spinal cord injury is quality of life and coping strategies in their day-to-day life. So, after SCI, patient having permanent disability below the level of injury and severely limiting their participation in ADL's. Therefore, the essential goal in rehabilitation is to improve quality of life. There are fewer studies on to find the prevalence of coping strategies and its correlation with quality of life in persons with SCI. Hence, there is a need to study.

1.2 AIM OF STUDY

The aim of study is to find out the prevalence of coping strategies and its correlation with quality of life in persons with SCI.

1.3 OBJECTIVES

1. To assess the prevalence of coping strategies in persons with SCI.
2. To find out its correlation on QOL in persons with SCI.

1.4 RESEARCH QUESTION

Will there be any prevalence of coping strategies and its correlation with QOL in persons with SCI?

REVIEW OF LITERATURE

- 1. Cholavech Chavasiri, Nopchanok Sukhprasert M.A, Srinual Chavasiri, M.D (Year 2021)** conducted study on “The objective is to investigate the prevalence of and factors associated with depression, the social support received by and the coping strategies used by the spinal cord injury individuals. The study used spinal cord lesion related coping strategies questionnaire and the social provisions scale. This resulted that 59.3% had some permanent impairments. And concluded that the coping strategies used by the individuals with spinal cord injury after discharge. These findings were implemented in the individuals in intervention to reduce depression among spinal cord injury patients by psychologically counselling and focusing on coping strategy, especially in tetraplegia and paraplegia.
- 2. Hassan Babamohmadi, Reza Negarandeh, Nahid Dehghan Nayeri (Year 2020)** conducted study on “Important coping strategies used by individuals with spinal cord injury: A quantitative study” In the study it is an accepted fact that using coping strategies have an very important role in the coping process and also quality of life following the spinal cord injury. But there is little information about the study which was conducted in Iran. Hence, the purpose of the study was to explore the important coping strategies used by Iranian patients with the spinal cord injuries. The method included 18 patients with spinal cord injury from the brain and spinal injury repair research center in Tehran University of Medical Sciences and the protection center of the disabled with the spinal cord injury. This resulted that data analysis showed seeking help from the religious beliefs to be an important coping strategy. This concluded that understanding the strategies that influence.
- 3. H Babamohmadi, R Negarandeh, N Dehghan Nayeri (Year 2011)** conducted study on “Coping strategies used by people with spinal cord injury- A quantitative study” Despite the fact that coping mechanisms play a critical role in the process of adaptation and quality of life after spinal cord injury, little is known about this globally and particularly by Iran. This study looked into the coping mechanisms employed by Iranian patients with spinal cord injuries. This was conducted in The Brain and Spinal Injury Repair Research Center of Tehran University of Medical Sciences and Protection Center of Spinal Cord Disables, Iran.

4. **Paul Kennedy, Peter Lude, ML Elfstrom, E Smithson (Year 2010)** conducted study on “Cognitive appraisals. Coping and quality of life outcomes: a multi-center study of spinal cord injury rehabilitation” The design of the study was longitudinal and multiple wave panel type. The objectives were to investigate the degree to which current thinking in the terms of early appraisals and coping predicts adjustment and also the quality of life outcomes after spinal cord injury and to what degree the social and demographic variables are involved. The data were analysed from 266 patients recruited as a part of an ongoing study from specialist units in the selected British, Swiss, German, and Irish spinal centers. The method was a questionnaire booklets were administered as soon as possible after the injury onset and after 12 weeks to the patients who were newly acquired to spinal cord injury. These were the individuals between the age of 16 to 83. The study concluded that the process of adjustment to spinal cord injury to begin as early as in the the stages of rehabilitation, and how the individual will cope with their injury and psychological well-being.

5. **Magnus L.Elfstrom, Anna Ryden, Margareta Kreuter, Charles Taft, Marianne Sullivan (Year 2004)** conducted study on “Relations between coping strategies and health related quality of life in patients with spinal cord lesion” There hasn’t been any systematic evidence to support the idea that using effective coping mechanisms is a vital component of making a successful transition to a severe physical disease or disability. While examining sociodemographic, disability related and social support characteristics, it was shown there were correlation between coping mechanisms related to spinal cord lesions and health related quality of life. In a cross-sectional study, we looked at 256 individuals from typical rural/urban Swedish area who had recently suffered a traumatic spinal cord lesion. The spinal cord lesion related coping measure. The spinal cord injury quality of life questionnaire was used as an outcome measure. When socio-demographic, disability related and social support variables were examined, coping mechanisms were evident correlates of health-related quality of life. The more reevaluation of life values and coping techniques there was, the higher the quality of life. The health-related quality of life is greater when there are fewer tendencies towards the dependent behaviour. The conclusion of the study was that coping mechanisms and

methods for encouraging adaptive outcomes in rehabilitation need to be given more attention.

6. **Caroline J Adherson, PhD, Lawrence C Vogel, MD, Kathleen M Chlan , BA and Randal R Betz, MD (2008)** conducted study on “Coping with spinal cord injury; strategies used by adults who sustained their injuries as children or adolescents” is to identify the coping strategies used by adults with pediatric-onset spinal cord injuries and hence also to determine how these coping strategies were related to demographics, injury-related factors and also the adults outcomes. Examine Interviews were conducted with adults who had suffered a traumatic brain injury (SCI) at least 18 years of age. This is a portion of an extensive longitudinal study that had 864 eligible participants. 259 of the 353 (41%) individuals who were questioned had their coping mechanisms evaluated. The Functional Independence Measure, Craig Handicap Assessment and Reporting Technique, Short-Form 12 measure of health-related quality of life, Satisfaction With Life Scale, Patient Health Questionnaire-9, and the Brief COPE adapted were among the standardized measures and questionnaires used in the telephone interview. According to the data, out of the 259 participants, 62% were men and 58% were tetraplegic. The average age of the victims was 14 years old (0–18 years old) and 30 years old (24–42 years old) at the time of the interview. Out of eight coping mechanisms.

7. **Am J Psychiatry, T D Stewart (1977);** conducted study on “Spinal cord injury; a role for the psychiatrist” where the coping mechanisms of patients with spinal cord injuries should be the primary focus of the initial psychiatric examination; this knowledge is critical to the treatment and rehabilitation plan. Psychiatrists can collaborate well with staff members in groups intended to lessen the stress of caring for patients who are profoundly impaired. It is crucial to carefully choose antidepressant or antipsychotic medicine for these people because they may have mental health conditions unrelated to the injury. The author makes the point that treating patients with spinal cord injuries and other seriously incapacitating injuries can benefit greatly from the expertise of psychiatrists.

8. **Wim Van Lankveld, Tijn Van Dieman and Ilse Van Nes (2011)**; conducted study “coping with spinal cord injury; tenacious goal pursuit and flexible goal adjustment” to examine the relationship between the adjustment following spinal cord injury rehabilitation and the higher-order coping mechanisms of flexible goal adjustment and tenacious goal pursuit. Style is cross-sectional analysis of correlations. After reaching out to all 397 qualifying patients who had been admitted for spinal cord rehabilitation between 1999 and 2009, 130 (or 33%) of them consented to answer a self-report questionnaire. Affective and cognitive psychological adjustment, flexible goal adjustment, and persistent goal pursuit were found to have partial connections. Control variables included social support, coping mechanisms, demographics, and factors associated to spinal cord injuries. Findings are Partial relationships between persistent goal pursuit and adaption indices were not significant after adjusting for pertinent demographic, health, and social support indices. Flexible goal adjustment and each of the following showed significant partial relationships.

9. **Bako KwahS, Abdullahi A (2018)**; conducted study on “A coping strategies in people with spinal cord injury; A qualitative interviewing” where goals are to recover from spinal cord injury (SCI) requires the use of coping mechanisms. The unique coping mechanism employed by a particular people with a unique cultural background is equally crucial to understand. This study looked into the unusual coping mechanisms employed by SCI patients in Kano. Approaches is Approving the research ethics committees of the National Orthopaedics Hospital, Dala, and the Kano State Ministry of Health, the study was a qualitative interview. A note taker and a tape recorder were used to record the participants' responses during the one-on-one interviews, which followed a qualitative interview guide. Following that, a theme analysis was conducted using the transcription, coding, and analysis of the replies. Twenty SCI patients with a mean age of 35.10 ± 13.56 were found in the results.

10. **Varsha Singh & Shambhovi Mitra (2023)**; conducted study on “Psychophysiological impact of spinal cord injury; depression, coping and heart-rate variability” where the purpose of the study was to investigate the relationships between post-injury heart rate variability (HRV), fighting-acceptance coping with

injury, and depressive symptoms in people with spinal cord injury (SCI). The research design is cross-sectional. Ninety-one people with SCI are housed in a tertiary care spinal cord injury hospital. Using a Polar heart rate monitor (RS 800 CX), all participants had their HRV evaluated. They also answered the Patient Health Questionnaire and the Spinal Cord Lesion Coping Strategy questionnaire. The degree of injury (tetraplegic, high paraplegia, and low paraplegia) and the length of the injury (early vs. late) were used to categorize the participants. HRV and coping were used as covariates in the odds ratio to assess the depression risk for the early and late duration groups. The correlation between three ratios—coping, depression (somatic vs. cognitive), and HRV (LF vs. HF).

11. **L.R Galvin & HPD Godfrey (2001)**; conducted study on “The impact of coping an emotional adjustment to spinal cord injury (SCI); review of literature and application of a stress appraisal and coping formulation” where the goals of in order to demonstrate how a Stress Appraisal and Coping model (SAC) might be applied to the rehabilitation of individuals with spinal cord injuries (SCIs), this paper reviews the research on the psychological adjustment to SCIs.

A review and evaluation of articles published over the last thirty years regarding psychosocial adjustment to SCI have been conducted. Whenever feasible, a SAC framework has been utilized to discuss the articles. Findings are based on psychological characteristics like coping, assessment, and psychosocial resources, psychological adjustment to SCI is mostly predictable, according to the literature. According to recent research, those who are at risk of experiencing clinical depression after spinal cord injury may benefit from psychological intervention to support positive psychological adjustment. It can be concluded that the SAC model offers a thorough formulation that takes into account the diversity of SCI populations.

12. **Ehsanur Rahman, Nirupom Bardhan, Michael Curtin, Md. Shofiqul Islam, Md. Fazlul Karim Patwary and Shazal Kumar Das (2022)**; conducted study on “An assessment of disability and quality of life in people with spinal cord injury upon the discharge from a Bangladesh Rehabilitation Unit” in the conclusion of their inpatient

rehabilitation in a rehabilitation facility in Bangladesh, the study's goal was to ascertain the degree of disability and quality of life of individuals with spinal cord injuries. These results were seen as markers of effective recovery and a foundation for evaluating the degree of reintegration into the community. Bangladeshi Center for the Rehabilitation of the Paralyzed. Data were gathered to evaluate the degree of disability and quality of life (QOL) using two common structured questionnaires: the WHODAS 2.0 and WHOQOL-BREF. The Mann-Whitney-U and Kruskal-Wallis tests were used to evaluate the data. Nine women and nine men with SCI were chosen as the 100 participants. People with SCI felt they had generally improved before being released from CRP's in-patient rehabilitation program.

MATERIAL AND METHODOLOGY

- **Source of Data** – Smt. Sindhu Tai Vikhe Patil Rehabilitation Department, Loni.
- **Tools & materials** – data collection sheet, consent form, questionnaire, pen, pencil, assessment sheet.
- **Study Setting** – Dr. APJ Abdul Kalam College of Physiotherapy, PIMS, Loni.
- **Method of Collection of Data** – Data will be collected by principal investigator.
- **Participants** – Patients having spinal cord injury both traumatic & non-traumatic.
- **Study Design** – Descriptive Survey
- **Study Duration** – 6 months.
- **Sample Size** – 46

SELECTION CRITERIA:**Inclusion criteria-**

1. Age between 18 to 80 years.
2. Both males and female participants.
3. Able to give consent and follow instructions.
4. Both traumatic and non-traumatic patients.
5. Patients with complete and incomplete injury.

Exclusion criteria-

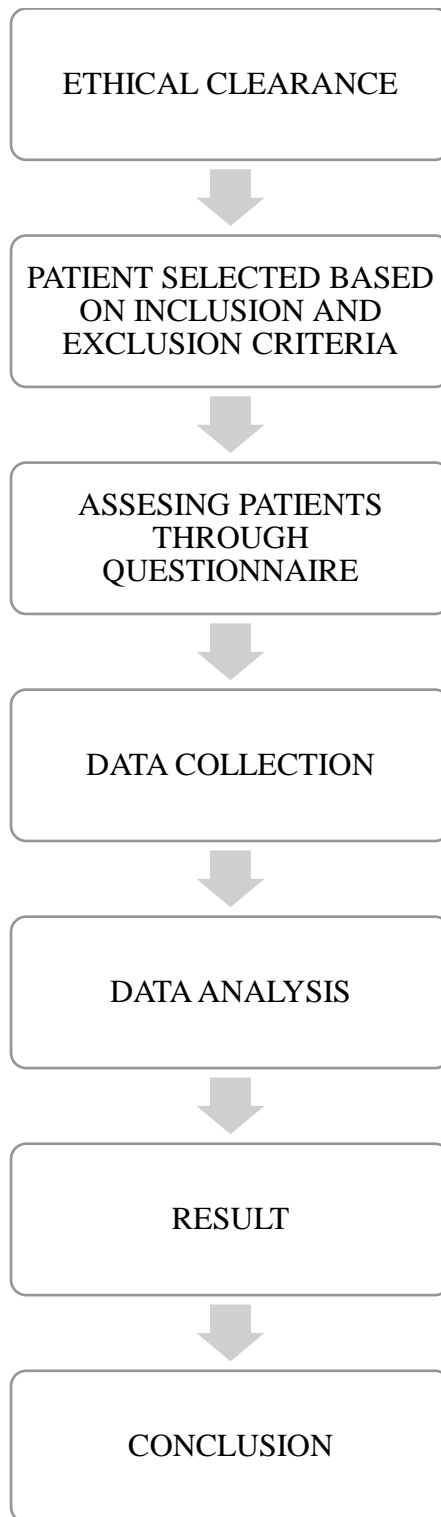
1. Patients with other neurological problems other than SCI.
2. Hemodynamically unstable patients.
3. Patients with severe psychiatric problems.
4. Patients with visual and hearing dysfunction and one who is unable to speak.
5. Patients with other musculoskeletal or metabolic disorders.

Outcome Measures:

1. SF-12
2. Spinal Cord Lesion Coping Strategies Questionnaire (SCI-CS).

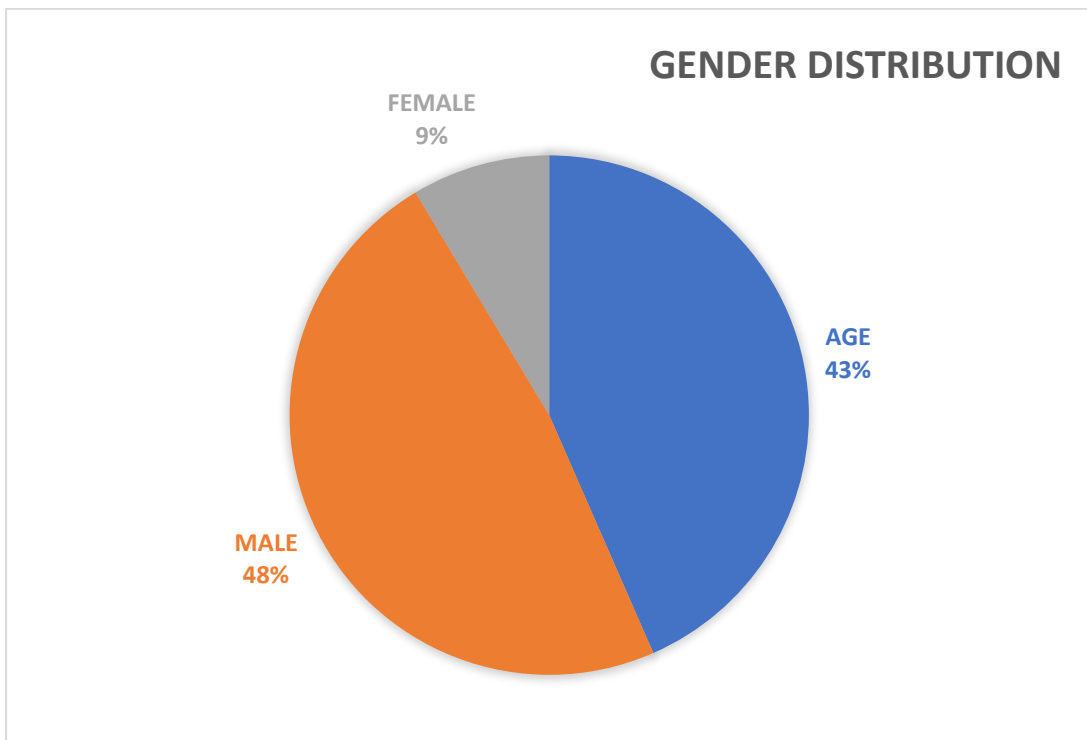
PROCEDURE

The sample (46) is drawn for the study designs were selected based on inclusion and exclusion criteria. The purpose of the study along with the complete information was shared with the participants. The data is collected from each participant and procedure of the study was explained to all of them. SF-12 scale for quality of life of spinal cord injury patients and Spinal Cord Lesion Coping Strategies Questionnaire (SCI-CS) is taken which assess the coping strategies of the participants. The responses were collected using the assessment sheets and the questionnaire. The participants were selected hereby on the basis of inclusion and exclusion criteria. The data obtained was used to determine the prevalence of coping strategies and its correlation with quality of life in persons with SCI. Thereafter, the data was collected from the participants.

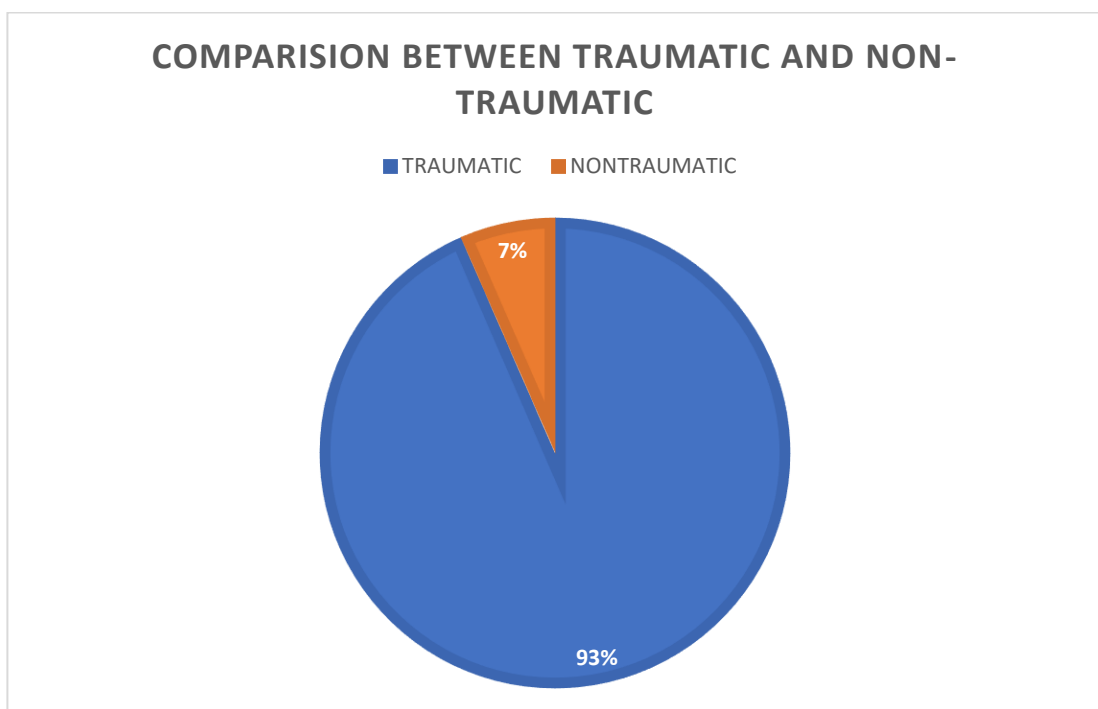


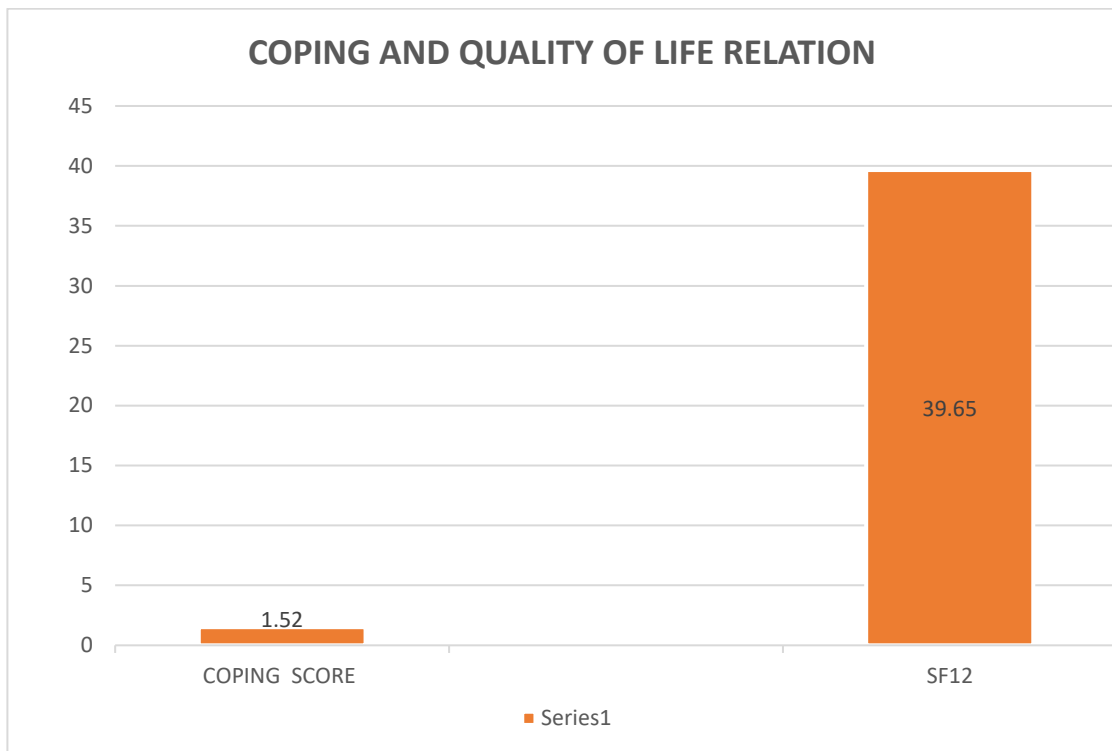


DATA ANALYSIS AND INTERPRETATION



In this, we come to know that males are more affected than the females whereas, there are more traumatic patients than non-traumatic. Hence, it is seen that the quality of life and coping are inter-related to each other in persons with SCI.





RESULT

In this study the quality of life and coping strategies were examined of persons with SCI. The participants were selected on basis of inclusion and exclusion criteria after which we concluded that coping was more affected as compared to quality of life in persons with SCI and there was more prevalence of coping strategies and its correlation with quality of life.

Employment or job-related activities and work are among the ways used to gain the autonomy and independence and are said important for enhancing self-esteem and also the identity. While seeking the information is used for the maintenance of autonomy which prevent further problems whereas finding solution to the current problems. Having an objective in life is the best stimulus for making some efforts while creating the motivation and hope in the individual.

The mean in the age group was 35.65217 years and mean of coping score was 1.521739 whereas, of SF 12 was 39.65217

DISCUSSION

The current research was carried out to investigate the prevalence of coping strategies and its correlation with quality of life in persons with SCI. The spinal cord

injury is trauma to spinal cord. The classification of SCI is done on basis of cause of injury, which classifies it as traumatic and non-traumatic and its function which classifies it as tetraplegia and paraplegia. While working on persons with SCI, it is crucial for the clinicians and researchers to be able to precisely assess the degree of neurological damage in the terms of sensory and motor damage.

In this research study the 'coping' refers to the persons dynamic cognitive and behavioral responses to stress. According to the findings, one of the most important coping strategies used by persons with SCI was religious and spiritual approach. The quality of life directly or indirectly affects the coping strategies of the persons with SCI.

One of the important determinants in persons with SCI is quality of life and coping strategies in their day-to-day life. As after SI, there is permanent disability below the level of injury, which limits their day-to-day activities. So, the essential goal of the study is to improve the coping strategy in relation to quality of life. It has been noticed that after SCI, the quality of life has been reduced.

The potential mechanism behind coping and quality of life is it influences the persons with SCI to improve their quality of life and helps in ADL's. The benefit is it helps persons to make independent for their day-to-day activities. The objective of study is to assess the prevalence of coping strategies in persons with SCI and to find out the correlation on quality of life in persons with SCI, which includes age criteria of 18 to 80 years both males and females including traumatic and non-traumatic patients and also with complete and incomplete injury.

SCI is an ideal type for the study of disablement, for several reasons. The most important is that the 2 components can be measured separately, with a high level of sensitivity. Lastly, SCI typically is incurred by young people who are basically healthy, deficits due to other disorders. while it is tempting to think of relationship between quality of life and coping strategies. It is conceivable for quality of life to affect impairment, especially if secondary disablement resulting from the lifestyles issues are considered.

The sample size 46 for the study was selected on basis of inclusion and exclusion criteria. The major determinant of QOL other than health status or disablement, especially socioeconomic status, gender and age were not controlled for

statically or otherwise. However, the consistency of the result is quite convincing, the average person with SCI experiences a lower QOL than an average person without SCI.

In this study, patients differ to the extent in which they have negative, neutral, or even positive appraisals about the condition. The coping strategies questionnaire includes acceptance, fighting spirit and social reliance on which the patients' mean was calculated where, acceptance has been shown to be particularly associated with less psychological distress and more positive morale, whereas the coping factor of social reliance has been shown to be related to increased psychological distress. Whereas for quality of life we have used SF 12, which helps to rule out the health survey of the persons with SCI with their physical health, emotional health and their interference with daily activities and how physical health or the emotional problems interfered with their social activities.

This study examined aspects of QOL, mood, life satisfaction, coping and perceived needs in a community sample of people with SCI. It was found that the participants were psychologically well-adjusted, indicating normal levels of anxiety and depression, exhibiting positive psychological reactions to their circumstances and using effective coping strategies. The needs identified as being addressed least satisfactorily were in areas of occupation, sexual, activity and pain relief. Health-related QOL seems to cover a vast area whose boundaries interwind with those of functional status and individualized QOL and created areas of intersections.

In other words, the more we consider the psychological aspects of QOL, the closer we come to QOL, whereas the measures health-related QOL that are strictly related to physical impairment seem to be associated with functional status measures. The role of coping strategies can also be seen from this developmental point of view. Especially for people with SCI, helps them to face the constraints of physical condition without an active role in their families and in society. Age seems to be negatively associated with physical functioning but not to the QOL measures that are related to psychological domains. This infers that positive adjustment to injury shows some kind of stability, despite the physical difficulties of aging with SCI. Possibly, such difficulties could be counterbalanced by processes of adjustment strengthened by age and experience as confirmed by the improvement of QOL or by the decrease of depressive symptoms over time.

The study showed that male were more affected as compared to the females and it also showed more cases were of non-traumatic as traumatic. Receiving the education from the professional people and especially the peer, concerning the problems and challenges involved, leads to the situation where the person learns how to prevent the problems, how to solve them and how to achieve self-control. For example, one patient said that –

“With all the education here and the activities taken on Saturday and Wednesday I feel more energetic and have become independent.”

In the article by Babamohamadi and N Deghan-Nayeri findings showed that hope was one of the most common coping strategies used and the motive force for other adaptive behaviors and coping strategies in the persons with SCI in Iran. They also found that making efforts towards the independence is also an important coping strategy in the Iranian SCI patients. The findings showed that engagement in the activities of daily life following trauma is a way to proving productivity, gaining independence and also the self-care and coping with the challenges caused by the injury. They also explained that working people enjoy a significantly better adaption in different aspects of their lives, such as financial satisfaction, social life, and control over life, pain, independence and also the well-being. Moreover, a positive relationship between being employed, health status, personal satisfaction, and positive adaption following the SCI has been reported in the article.

Considering the foregoing, seeking for social support also pertains to seek for assistance and may also hide under the guise of religion. According to Babamohamadi and colleagues, some of their study participants asked people to help to pray them. Similarly, in the study by Sulaiman Bako Kwah’ and Auwal Abdullahi some participants echoed the same sentiment as mentioned by the following participant- “Actually, I believe this injury is from God and I do ask people to recite the whole chapters of holy Quran for me to get well. I also write some verses of the holy Quran on slate, then wash and drink that water. Now I am looking for a way to raise the money for my rehabilitation” said the participant in the same article.

The data was collected and the results revealed that QOL in persons with SCI was affected with relation to their coping strategy. During the data analysis, three coping strategies in patients with SCI, including seeking help from the religious beliefs, hope and also making efforts towards independence or the self-care emerged. This confirms the importance of psychological counselling in addition to rehabilitation

programs and social interventions, as a treatment option that could be precious help in the transition from physical impairments to the actual disability.

Hence, the persons with SCI faces difficulty with coping strategies that affect the quality of life and vice versa. Therefore, it is important to maintain a good health which not only includes physical but also the mental health of the person.

CONCLUSION

The present study concluded that coping strategies and quality of life in persons with SCI is affected in which both coping and quality of life is hampered and both are inter-related in persons all over health.

LIMITATIONS OF THE STUDY

1. The study was limited to Loni, Maharashtra
2. There were only 2 outcome measure taken.

FUTURE SCOPE OF THE STUDY

1. It is very much essential to find out measures to improve quality of life and coping strategies in persons with SCI.
2. More research is required to determine the prevalence of coping strategies in persons with SCI.
3. More research is needed to explore better results.

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Dr. K. SRIDEVI/ Afr.J.Bio.Sc. 6(Si2) (2024) 39-70

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ANNEXURE I:

ETHICAL COMMITTEE LETTER



Pravara Institute of Medical Sciences
(Deemed to be University)
University Established under section (3) of UGC Act
Dr.A.P.J.Abdul Kalam College of Physiotherapy
Loni Bk-413736, Tal:Rahata, Dist- Ahmednagar
Maharashtra State, India.



E-mail:principal.cpt@pmtpims.org

Ph.02422-271489

Ref. No. PIMS/DR.APJAKCOPT/IEC/2023/310

Date: 06 /04/2023

To,

DIKSHA RAJENDRA BATRA

IVBPT/Intern,

Dr. APJ Abdul Kalam College of Physiotherapy

The institutional Ethical committee in its meeting held on 30th March 2023 has reviewed and discussed your research proposal.

Registration No:	Dr.APJAKCOPT/BPT/UG/2023/06
Title of study:	<u>Prevalence of coping strategies and its correlation with quality of life in persons with spinal cord injury.</u>
Decision of committee	Approved
Approved period	07/04/2023 to 07/04/2024
Committee's recommendation:	Nil

Please Note:

- The research is to be carried out in line with the information provided in the forms submitted by the candidate
- Inform IEC immediately in case of any Adverse events and serious adverse events
- Inform IEC immediately in case of any change in study procedure/ Protocol, site and investigator
- This permission is only for period mentioned above. Six month/ final reports are to be submitted to IEC
- Members of IEC have right to monitor the progress with prior intimation

Signature,
Secretary IEC for UG & PG Research,
DR. APJ ABDUL KALAM COPT, PIMSDU



ANNEXURE II:

INFORMED CONSENT FORM

I Mr./Miss. _____ of my own free will of choice, hereby give my consent to be included in the study-Prevalence of coping strategies and its correlation with quality of life in persons with spinal cord injury. I have been clearly informed to my satisfaction the purpose of the study and thus, I agree to fully cooperate and participate in the study.

I have been informed that no part of my information shall be revealed except the data which will be used for the study and adequate secrecy will be maintained.

Also, no part of the information will be used against me. I am also aware of my rights to opt out at any time and prevent my data to be utilized at any phase of the study if I desire.

I confirm that I have explained the purpose of the study and answered all the questions related to my study.

PARTICIPANT' S SIGNATURE _____

PHYSIOTHERAPIST'S SIGNATURE _____

ANNEXURE III:

Spinal Cord Lesion Coping Strategies Questionnaire (SCL-CS)

Adapted from Elfstrom ML et al. Linkages between coping and psychological outcome in the spinal cord lesioned: development of SCL-related measures, *Spinal Cord*, 40:23-29, 2002; Appendix and

Elfstrom ML et al. Condition-related coping strategies in persons with spinal cord lesion: a cross-national validation of the Spinal Cord Lesion-related Coping Strategies Questionnaire in four community samples. *Spinal Cord*, 45: 420-428, 2007; Appendix. Used with permission from Nature Publishing.

Each item is rated on a 4-point Likert-type scale ranging from 1-4:

- 1) Strongly agree
- 2) Agree
- 3) Disagree
- 4) Strongly disagree.

Mean values are computed such that total scores range from 1 to 4.

Items:

Acceptance

I have been able to see my lesion in relation to other things in life.

I think I have accepted my lesion.

My lesion has made me learn to appreciate new things in life I did not think about before.

What I have lost physically, I have gained in so many other ways.

Fighting spirit

I try to make the best of life despite the lesion.^[1]_{SFP}

I refuse to let the lesion rule my life.

I always try to manage on my own as much as possible.

It is important for me to set goals that I can fight to achieve.

I always look out for new ways to make life easier.

Social reliance

My lesion has taught me that we are all dependent upon others.

I would feel completely helpless without support from others.

You have to believe that other people are able to help you.

SCL-CSQ Worksheet:

Patient Name: _____

Date: _____

Each item is rated on a 4-point Likert-type scale ranging from 1) Strongly agree to 4) Strongly disagree.

Item:	Rating (1-4):
Acceptance	----
I have been able to see my lesion in relation to other things in life.	
I think I have accepted my lesion.	
My lesion has made me learn to appreciate new things in life I did not think about before.	
What I have lost physically, I have gained in so many other ways.	
Acceptance domain score (averaged; range 1-4):	
Fighting spirit	----
I try to make the best of life despite the lesion.	
I refuse to let the lesion rule my life.	
I always try to manage on my own as much as possible.	
It is important for me to set goals that I can fight to achieve.	
I always try to look out for new ways to make life easier.	
Fighting Spirit domain score (averaged; range 1-4):	
Social reliance	----
My lesion has taught me that we are all dependent upon others.	
I would feel completely helpless without support from others.	
You have to believe that other people are able to help you.	
Social Reliance domain score (averaged; range 1-4):	



SF12 HEALTH SURVEY

ID NUMBER:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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FORM CODE: SFH
VERSION: 3.0 11/07/2017

Event: _____

0a) Date of Collection / / 0b) Staff Code

Instructions: This form should be completed during the clinic visit. Please read each question carefully.

The first question is about your health now. Please try to answer as accurately as you can.

1) In general, would you say your health is...

- Excellent₁
 Very good₂
 Good₃
 Fair₄
 Poor₅

Now, please think about the activities that you might do during a typical day. As you read each item, please select whether your health now limits you a lot, limits you a little, or does not limit you at all when doing these activities.

2a) ... moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf. Does your health now limit you a lot, limit you a little, or not limit you at all?

- Yes, Limited a lot₁
 Yes, Limited a little₂
 No, Not at all limited₃

2b) ... climbing several flights of stairs. Does your health now limit you a lot, limit you a little, or not limit you at all?

- Yes, Limited a lot₁
 Yes, Limited a little₂
 No, Not at all limited₃

The following two questions ask you about your physical health and your daily activities.

3a) During the past four weeks, how much of the time have you accomplished less than you would like as a result of your physical health?

- All of the time₁
 Most of the time₂
 Some of the time₃
 A little of the time₄
 None of the time₅

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ID NUMBER:										
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FORM CODE: SFH
VERSION: 3.0 11/07/2017

Event: _____

- 3b) During the past four weeks, how much of the time were you limited in the kind of work or other regular daily activities you do as a result of your physical health?
- All of the time₁
- Most of the time₂
- Some of the time₃
- A little of the time₄
- None of the time₅

The following two questions ask you about your emotions and your daily activities.

- 4a) During the past four weeks, how much of the time have you accomplished less than you would like as a result of any emotional problems, such as feeling depressed or anxious?
- All of the time₁
- Most of the time₂
- Some of the time₃
- A little of the time₄
- None of the time₅
- 4b) During the past four weeks, how much of the time were you limited in the kind of work or other regular daily activities you do as a result of any emotional problems, such as feeling depressed or anxious?
- All of the time₁
- Most of the time₂
- Some of the time₃
- A little of the time₄
- None of the time₅

- 5) During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?
- Not at all₁
- A little bit₂
- Moderately₃
- Quite a bit₄
- Extremely₅

The next four questions are about how you feel and how things have been with you during the past 4 weeks. As you read each statement, please select the one answer that comes closest to the way you have been feeling; is it all of the time, most of the time, some of the time, a little of the time, or none of the time?

- 6a) How much of the time during the past 4 weeks... have you felt calm and peaceful?
- All of the time₁
- Most of the time₂
- Some of the time₃
- A little of the time₄
- None of the time₅

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ID NUMBER:									
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FORM CODE: SFH
VERSION: 3.0 11/07/2017

Event: _____

- 6b) How much of the time during the past 4 weeks... did you have a lot of energy?
- All of the time₁
- Most of the time₂
- Some of the time₃
- A little of the time₄
- None of the time₅
- 6c) How much of the time during the past 4 weeks... have you felt downhearted and depressed?
- All of the time₁
- Most of the time₂
- Some of the time₃
- A little of the time₄
- None of the time₅
- 7) How much of the time during the past 4 weeks... has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?
- All of the time₁
- Most of the time₂
- Some of the time₃
- A little of the time₄
- None of the time₅

END OF FORM

ANNEXURE IV: MASTER CHART

SR NO	AGE	GENDER	LEVEL OF		COPING			SCORE	SF -12	
			INJURY		ACCEPTANCE	FIGHTING SPIRIT	SOCIAL RELIANCE			
1	26	M		C5-6	Agree		Agree	Disagree	2	43
2	29	M		L2	Agree		Agree	Agree	1	50
3	35	M		T5-7	Agree		Agree	Disagree	2	38
4	48	M		C7	Disagree		Agree	Disagree	3	31
5	54	M		C5-6	Agree		Agree	Agree	1	41
6	62	M		T12	Agree		Disagree	Agree	2	28
7	69	M		C5-6	Agree		Agree	Agree	1	40
8	20	M		T12	Disagree		50% Agree	Disagree	3	33
9	27	M		T12	Agree		Agree	Agree	1	43
10	25	F		Potts Spine	Agree		Agree	Disagree	2	30
11	32	F		T12	50% Agree		Agree	Agree	1	54
12	48	M		C7	Agree		Agree	50% Agree	1	39
13	54	M		T11-12	Agree		Agree	Agree	1	44
14	35	M		C5-6	50% Agree		Disagree	50% Agree	2	37
15	36	M		C2-7	Agree		Agree	Agree	1	53
16	50	M		T4	50% Agree		50% Agree	Agree	1	33
17	32	M		C5-7	Agree		Agree	Agree	1	46
18	29	M		T12-L1	50% Agree		50% Agree	Agree	1	53
19	40	M		T11-12	50% Agree		Agree	Disagree	2	49
20	36	M		T8-9	Agree		Agree	Agree	1	52
21	54	M		C6-7	Agree		Agree	50% Agree	1	34
22	29	F		L1	50% Agree		50% Agree	Disagree	2	38
23	21	M		Transverse myelitis	Disagree		50% Agree	Disagree	3	24
24	32	M		T7-8	Agree		Agree	Agree	1	48
25	30	M		T5-6	50% Agree		Agree	Disagree	2	53
26	38	F		Transverse Myelitis	Agree		Disagree	Agree	2	55

*Prevalence Of Coping Strategies And Its Correlation With Quality Of Life In Persons
With Sci: A Cross-Sectional Survey*

27	32	M		T3-4		Agree		Agree		Agree		1	38
28	21	M		T7-8		Disagree		Disagree		50% Agree		3	29
29	22	F		T12-L1		Disagree		50% Agree		Agree		2	36
30	29	M		T6-7		Agree		50% Agree		Agree		1	44
31	30	M		T12		Agree		Agree		50% Agree		1	50
32	35	M		L1-2		Agree		Agree		Agree		1	30
33	20	M		T12		Agree		Agree		Agree		1	53
34	28	M		C4-5		50% Agree		50% Agree		Agree		1	37
35	22	M		T6-7		Disagree		Disagree		Agree		3	26
36	36	M		C5-6		Agree		Agree		Agree		1	29
37	32	M		C3-4		Agree		Agree		Agree		1	46
38	32	M		T6-7		50% Agree		Agree		Disagree		2	33
39	72	M		C3-4		Agree		Agree		50% Agree		1	48
40	29	F		T10-11		Agree		50% Agree		Agree		1	52
41	58	M		C6-7		50% Agree		Agree		50% Agree		1	42
42	30	M		T7-8		50% Agree		Agree		Agree		1	27
43	27	F		L1		Agree		Agree		Agree		1	41
44	19	M		C5		Agree		50% Agree		Agree		1	24
45	38	M		T2-3		Disagree		Agree		Disagree		3	22
46	37	F		T12		50% Agree		50% Agree		Disagree		2	28
