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ORIGINAL ARTICLE

Comparison of International Classification of Functioning, Disability and Health Coreset and Short form Health Survey 36 in Cervical Postural Syndrome

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ABSTRACT

Introduction: Cervical postural syndrome is a common unpleasant and painful posture problem characterized by a protruding chin and rounded shoulders. Neck pain is associated with decreased health-related quality of life. Quality of Life assessed with HRQOL assessment scales. With the newly available International Classification of Functioning, Disability and Health (ICF), a universal framework of functioning and health, the representation of items and scales of SF36 can be compared better.

Objective of study:

- The assessment of patient with cervical postural syndrome through International Classification of Functioning Disability and Health corset and short form health survey in Cervical Postural Syndrome.
- To evaluate and measure the differences in the Quality of Life through the activity and participations component International Classification of Functioning Disability and Health corset and short form health survey 36 in Cervical Postural Syndrome.

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- To compare the differences in Quality of Life through the activity and participations component of International Classification of Functioning Disability and Health corset and short form health survey 36 in Cervical Postural Syndrome.

Method: This observational study was carried out with sixty subjects of cervical postural syndrome with mean age group 30 at PMR, Physiotherapy and Orthopedics OPD of SMIH, Dehradun. After thorough assessment and consent form was signed. Patients were assessed with domain of activities and participants of ICF and Quality of life is assessed by using SF-36 questionnaire simultaneously.

Conclusion: Most of the domain of SF 36 of health related questionnaires align well with the activities and participations domains of ICF when it assessing the individual with cervical postural syndrome. Domains of SF36 linked with the domains of ICF, through which related domains, unrelated and gaps were founded. Related domains of SF 36 compared with the related domains of activities and participations of ICF. Result was significant which shows that the ICF was the better assessment tool as compared to the SF36.

KEYWORDS

• Cervical Postural Syndrome • ICF • SF 36 • Quality of Life

INTRODUCTION

Poor posture can induce muscular imbalance, resulting in a defective interaction between various body parts. One of the most common cervical irregularities that predisposes individuals to pathological diseases like neck pain is forward head posture. "Cervical postural syndrome" is a very common uncomfortable and painful postural complaint characterized by a protruding chin and rounded shoulders.[1]

Neck pain is one of the most common persisting symptoms in the general population with an estimate lifetime prevalence of 67% among adults of age group 20 to 69 years. Limited range of motion and a subjective felling of stiffness may accompany neck pain, which is often precipitated or aggravated by neck movements or sustained neck postures. Headache, brachialgia, dizziness and other signs and symptoms may also be present in combination of neck pain.[2]

Pain is the main symptom of a group of conditions known as cervical syndrome that are brought on by abnormalities in the cervical spine and the soft tissue that surrounds it. A significant portion of the population today suffers from sore necks. The factors contributing to this issue include the modern lifestyle, prolonged sitting and incorrect, fixed or constrained working postures. The root of these difficulties is found in the mechanical disorders of the cervical spine structures, poor body posture and jerky body movements.[3]

Posture is a attitude of the body. The relative arrangement of body parts for a specific activity.

Gravity place stress on the structures responsible for maintaining the body upright in a posture. The center of gravity of head falls anterior to atlanto-occipital joints. The posterior cervical muscles controls to keep the head balanced.[4]

Musculoskeletal balance good posture is essential for optimal functioning of the body and is a key to a healthy spine. The muscles of the body must be in balance to support an aligned spine, contracting and relaxing to maintain stability, working in synergy with the larger muscles that move the arms and legs to make body movement more efficient and less taxing on joints. Good posture is the state of muscular and skeletal balance which protects the supporting structures of the body against injury or progressive deformity irrespective of the attitude in which these structures are working. Cervical postural syndrome is a very common uncomfortable and painful postural complaint characterized by a protruding chin and rounded shoulders. Office workers who work at a computer, secretarial or administrative staff, teachers and taxi drivers are most likely to suffer from this condition. Cervical postural syndrome is a chronic condition that does not autocorrect because the dysfunction of proprioceptive system leads to the occurrence of a new body

pattern considered by the postural system as ideal and maintaining it in time.[5]

Global Postural re-education" (GPR) has been introduced and is being used by clinicians worldwide. GPR is a methodof physiotherapy, developed by phillipe souchard in the1950s. Its therapeutic approach rests on causality, andglobality and is based on the hypothesis that the muscu-lar system is organized into muscle chains, which can beshortened as a result of musculoskeletal disorders andconstitutional, behavioral and psychological factors. Based on this rationale, the GPR aims to recover musclefunction and reduce postural alterations by improvingbody awareness and postural control management. A series of postures and gentle activemovements are performed aimed at stretching shortenedmuscles, decompressing and aligning joints, with breathing control, contractions of antagonist muscles and sensory integration exercises to work on proprioceptive efferents and re-educate postural control.[6]

Similarly, it is stated that there is a similar relationship betweenchronic pain and sleep quality. Chronic pain adversely affectssleep quality and life, while poor sleep quality can worsen thelevel of pain. However, in the literature, it is observed that there is a relationship between pain severity and different sub-components of health-related quality of life in cases of chronicpain, and studies examining the sleep quality are inadequate. Thus,more studies are needed to determine the relationship betweenchronic pain and sleep disturbance was reported in the literature(10). This study aims to investigate the relationship between painlevel and quality of life, sleep quality, and psychological state inpatients with chronic neck pain.[7]

Chronic non-specific neck pain patients have more functional limitations and catastrophizing beliefs that may cause disability, lower vitality and worse general health status. All the aforementioned factors are strongly related, affect one into the other, and may lead to a negative impact on health-related quality of life (QOL).[8]

The SF-36 is a 36-item general health questionnaire assesses health over thepast 4 weeks in eight domains: physical functioning (PF), role physical (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role emotional(RE), and mental health (MH). Scores for each domainrange from 0 to 100, with higher scores indicating a betterself-reported health. Patients with neck pain report lower scores on alldomainsand thereby a poorer healththan the general population. The acuity of neck pain, setting, age, percentage radiculopathy, percentage of litigation, anworkers compensation in the above-mentioned studieswere different. Litigation and workers compensation mayplay a negative role in perceived disability of patientswith nonspecific neck pain, chronic pain, or back pain.[9]

Badposture can cause the upper back muscle to workpersistently to offset the pull of the gravity and forwardneck. Bad posture such as forward head posture isseen while utilizing cell phones or laptops, which may leadto neck pain and this posture is known cause for neck pain. It happens due to outrageous and successive pressureto the flexed neck.[10]

Health-Related Quality of Life (HRQOL) and the International Classification of Functioning Disability and Health (ICF) represent two different perspectives from which to look at functioning and health. Therefore, it is expected that both will often be used concurrently in clinical practice, research and health reporting. The objective of our study was to examine the relationship between six HRQOL instruments (the SF-36, the NHP, the QL-I, the WHOQOL-BREF, the WHODASII and the EQ-5D) and the ICF. All six HRQOL instruments were linked to the ICF separately by two trained health professionals according to ten linking rules developed specifically for this purpose.[11]

WHO has been defining health since 1948, but only since 2001 with ICF that WHO clearly defined disability within the frame of the bio psychosocial model. The World Health Organization (WHO) recommends using this classification alongside the International Classification of Diseases, 11th revision (ICD-11), that is used to report mortality and morbidity data.[12]

The International Classification of Functioning, Disability and Health (ICF) defines functioning and disability in terms of Body Functions and Structures, Activities and Participation, all influenced by Environmental Factors as well as health conditions and personal factor.[13]

The ICF can be applied when studying measures and clinical tests and for profiling

functioning in specific patient populations, groups or subgroup.[14]

Postural stability, which can be evaluated in both static and dynamic settings, is crucial for carrying out daily tasks. Static tests assess individual's ability to maintain the body's center of mass within a fixed base of support and dynamic tests assess the ability of individuals to keep the body's center of mass over a moving base of support. Both static and dynamic postural stability require integration of inputs from visual, vestibular and proprioceptive systems in order to achieve a motor response.[15]

AIMS AND OBJECTIVE

Aim of Study

To compare the International Classification of Functioning Disability and Health corset and short form health survey 36 in Cervical Postural Syndrome.

Objective of Study

The assessment of patient with cervical postural syndrome through International Classification of Functioning Disability and Health corset and short form health survey in Cervical Postural Syndrome.

To evaluate and measure the differences in the Quality of Life through the activity and participations component International Classification of Functioning Disability and Health corset and short form health survey 36 in Cervical Postural Syndrome.

To compare the differences in Quality of Life through the activity and participations component of International Classification of Functioning Disability and Health corset and short form health survey 36 in Cervical Postural Syndrome.

PURPOSE OF STUDY

Cervical postural syndrome is a common condition which affects patient quality of life.

The purpose of this research is to make it possible for patients with cervical postural syndrome to be evaluated properly and cover all factors that affect the patients by this condition. Extensive Assessment of all the domains is needed for effective treatment.

Since yet ICF core set is not developed for cervical postural syndrome. This study also aims to assess and identify the gaps in the ICF core set and SF36 QOL tools when applying in patient with cervical postural syndrome.

HYPOTHESIS

Alternative Hypothesis: There may be significant difference between International Classification of Functioning Disability and Health corset and Quality of Life (SF36) assessment scale in Cervical Postural Syndrome.

Null Hypothesis: There may not be significant result of International Classification of Functioning Disability and Health corset and Quality of Life (SF36) assessment scale in Cervical Postural Syndrome.

METHODOLOGY

Study design and participants

This study was observational study, data collection started from March 2024 to June 2024 at physiotherapy orthopedics OPD of SMIH, Dehradun patients with cervical postural syndrome.

The mean age group was 30 years. The inclusion criteria were: Age above 18 years, history of pain more than 3 months in the cervical region age and the exclusion criteriawere history of cervical spine surgery, whiplash injury, pregnancy, signs of cervical radiculopathy, pain report in the hip, knee, and ankle except for neck in three months ago, diabetes, rheumatoid arthritis, vestibular or neurological disorder.[13] Written informed consent was obtained from the participating patients. The institutional ethics committee, Shri Guru Ram Rai Institute of Medical & Health Sciences, Patel Nagar Dehradun approved the study.

OUTCOME MEASURES

ICF Assessment Scale, Quality of life Assessment Scale (SF36)

PROCEDURE

Study will be conducted to do the comparison of International Classification of Functioning, Disability and health and Quality of Life (SF36) in Cervical postural Syndrome. In this study will enroll the subjects from the Physiotherapy OPD of SMIH, Dehradun on the basis of inclusion and exclusion criteria.

Patient will sign consent form. Each subject's assessment will be done through International Classification of Functioning, Disability and health assessment core set and Quality of Life (SF36) assessment form respectively. Audio recording will be done during interview or assessment for accuracy of assessment. Then the comparison will be done between the outcomes of International Classification of Functioning, Disability and health and Quality of Life (SF36) assessment scale respectively in cervical postural syndrome.

Figure 1: Diagrammatic presentation of assessment

ICF CORESET

ICF domains	ICF code
1) Learning and applying knowledge	(d1)
• Acquiring skills	d155
• Focusing attention	d160
2) General tasks and demands	(d2)
• Undertaking multiple tasks	d220
• Handling stress and other psychological demands	d240
3) Communication	(d3)
• Using communication devices and techniques	d360
4) Mobility (d4)	
• Changing body position	d410
• Maintaining a body position	d415
• Transferring oneself	d420
• Lifting and carrying objects	d430
• Fine hand use	d440
• Hand and arm use	d445
• Driving	d475
5) Self-care	(d5)
• Looking after one's health	d570
6) Domestic life	(d6)
• Preparing meals	d630
• Caring for household objects	d650
• Doing housework	d640
• Assisting others	d660
7) Interpersonal interactions and relationship	(d7)
• Family relationship	d760
8) Major life area	(d8)
• Education	d839
• Remunerative employment	d850
• Non-remunerative employment	d855
9) Community, social and civic life	
• Recreation and leisure	d920
• Religion and leisure	d930

DATA ANALYSIS

Statistical analysis was carried out physically as well as with statistical software SPSS 21 version and Microsoft word. Physically analysis was carried out through the linking method between the ICF and SF36 assessment scale. Some domain were found to be related, some domains were unrelated and gap were also identified when compared with ICF and SF36. Statistical software SPSS 21 version was used for analysis the data. To analyse the difference between related ICF score and related SF36 Score and related ICF Score and related SF36 Score independent t-test was used.

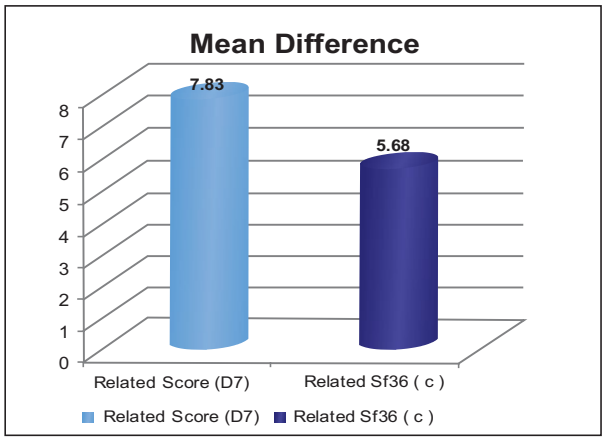
The result was analyzed by independent t-test that is used to measure inter-rater reliability for categorical items within group Related ICF Score and related SF 36 Score.

Probability values of less than 0.05 were considered statistically significant.

COMPARISON BETWEEN DOMAIN OF ICF "D7" AND SF36 "SF"

Table 1: Related ICF Score and Related SF36 Score between "D7" and "SF"

Duration Group	Mean±SD	t-value	P-Value	Result
Related ICF Score	7.83±5.09	3.181	0.002	Significant
Related SF36	5.68±1.21			

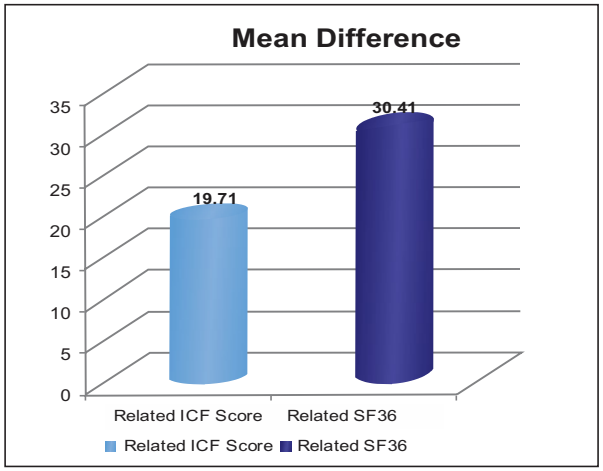


Graph 1: Graphical representations of Comparison between domain of ICF "D7" and SF36 "SF"

COMPARISON BETWEEN DOMAIN OF ICF "D9" AND SF36 "PF+SF"

Table 2: Related ICF Score and Related SF36 Score between "D9" and "PF+SF"

Duration Group	Mean ± SD	t-value	P-Value	Result
Related ICF Score	19.716 ±5.84	12.966	0.001	Significant
Related SF36	30.416 ±2.58			

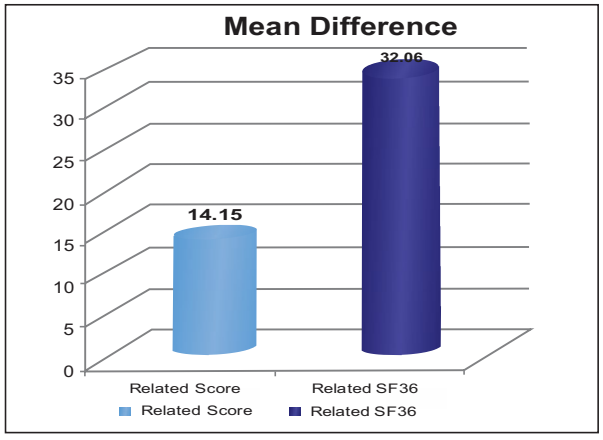


Graph 2: Graphical representations of comparison between domain of ICF "D9" and SF36 "PF+SF"

COMPARISON BETWEEN DOMAIN OF ICF "D2" AND SF36 "MH+VT"

Table 3: Related ICF Score and Related SF36 Score between "D2" and "MH+VT"

Duration Group	Mean ±SD	t-value	P-value	Result
Related ICF	14.15 ±4.96	18.172	0.001	Significant
Related SF36	33.96 ±6.80			

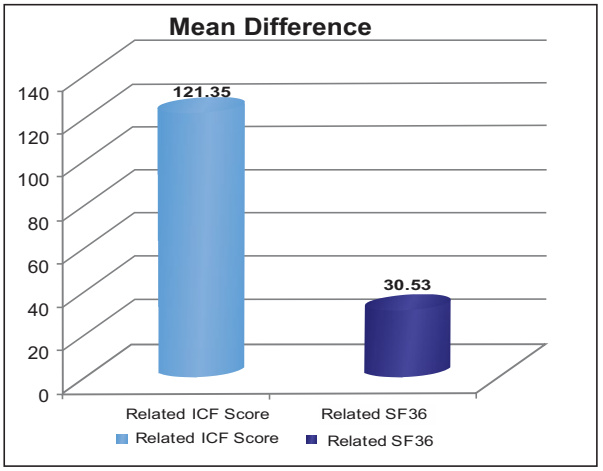


Graph 3: Graphical representations of comparison between domain of ICF "D2" and SF36"MH+VT"

COMPARISON BETWEEN DOMAIN OF ICF "D8+D6+D2+D4" AND SF36 "PF+RF"

Table 4: Related ICF Score and Related SF36 Score between "D8+ D6+D2 +D4" and "PF+RF"

Duration Group	Mean±SD	t-value	P-value	Result
Related ICF Score	121.35 ±23.25	30.013	0.001	Significant
Related SF36	30.53 ±2.93			



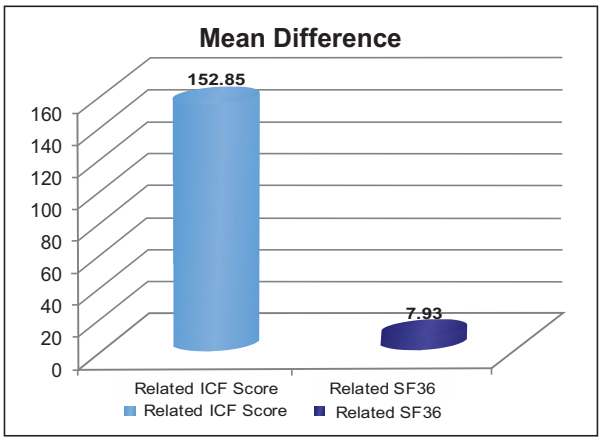
Graph 4: Graphical representations of comparison between domain of ICF

"D8+D6+D2+D4'' and SF36 "PF+RF".

COMPARISON BETWEEN DOMAIN OF ICF "D2+D4+D5+D6+D8+D9" AND SF36 "BPB+RE"

Table 5: Related ICF Score and Related SF36 Score between "D2+D4+D5+D6+D8+D9"and "BPb+RE"

Duration Group	Mean ±SD	t-value	P-Value	Result
Related ICF	152.85 ±28.13	39.843	0.001	Significant
Related SF36	7.93 ±1.49			



Graph 5: Graphical representations of comparison between Related ICF Score and Related SF36 between "D2+D4+D5+D6+D8+D9"and"BPb+RE"

RESULTS

This study was carried out with the aim to compare the International Classification of Functioning Disability and Health corset and short form health survey 36 in Cervical Postural Syndrome. After fulfilling the selection criteria total 60 patients were included in the study by convenience sampling method. Subjects were assessed with SF 36 and ICF assessment scale consequently. Each assessment scale had domains. ICF had 9 domains of component of activities and participation such as Learning and applying knowledge (D1), General tasks and demands (D2), Communication (D3), Mobility (D4), Selfcare (D5), Domestic life (D6), Interpersonal interactions and relationships (D7), Major life areas (D8) and Community, social and civic life (D8).The SF-36 is a 36 item scale, which measures domains of health status: physical functioning (PF); physical role limitations (RP); social functioning (SF); general health perceptions (GH); emotional role limitations (RE); and mental health (MH); energy/vitality (VT); bodily pain (BP)and reported health transmission (RH).

Statistical Method independent t-test

The result was analysed by independent t-test that is used to measure inter-rater reliability for categorical items within group Related ICF Score and related SF 36 Score.

DISCUSSION

When comparing HRQOL instruments, the ICF proved to be a very helpful tool. The ICF can be used as a common framework for comparing HRQOL instruments since, with very few exceptions, the ICF categories accurately represented the content of the HRQOL instruments (SF36). Studying the variability of QOL measures with respect to their depiction of bodily functions, activities, participations, and environmental factors was made possible by the linkage.

This research aimed to explore if the ideas behind clinical measurement tools could be connected to the ICF, which supports the standardization of data and enhances communication among experts.

This study involved 60 patients with average mean age was 30s. We took these age groups because of common appearance of poor posture in this groups, due to today's lifestyle or work style habit. By age 30, many individuals settle into their jobs, often doing desk-based

jobs that involve sitting for long periods of time and using computers. Poor ergonomic practices and lifestyles in a sitting posture can lead to cervical posture syndrome. This age group tends to have high workload and stress on cervical region, which can exacerbate poor cervical posture. People in this age groups may be more aware about their health issues and they are easily approaches health care health care centers. Physical and anatomical changes occurred in the age of 30, poor posture and musculoskeletal tension begin to decrease as compared to younger children, so we found higher prevalence rate in middle age group population.

According to a study by Yip et al. (2008), prolonged computer use and poor ergonomics are common risk factors for neck pain, which aligns with the experiences of many individuals in their 30s. At around 30 years old, individuals commonly enter more stable career phases which frequently involve

prolonged desk work and computer use. This professional environment can contribute significantly to cervical postural syndrome due to poor ergonomics and sedentary behavior.

This study found that there is some domain of activity and participation of ICF which correlate with the domain of the SF36 assessment scale. These were related domain of ICF. Some domain of activities and participation of ICF were not found in the domains of SF 36. These were unrelated domains of activities and participation of ICF and those domain which not present in ICF and present in SF36 assessment scale were the gaps of assessment scale.

In this study, the item content of ICF measure was linked to the respective SF 36 categories independently, through linking procedure. We discovered that most of the elements in the component of ICF "d - Activities and participation" were linked to SF 36 categories such as physical functioning, role physical and social functioning.

This study showed physical functioning domain of SF36, involves vigorous activities such i.e. running, heavy objects lifting, strenuous sports, was frequently involve item. Moderate activities such as; moving a table, pushing an object, bowling, or playing sports, Lifting or carrying groceries, Bending, kneeling, or stooping was also reported. Role physical and social functioning also involved. Activities and Participation Component of ICF involve remunerative employment (d850) was reported as the most frequent item, closely followed by doing housework (d640), and recreation and leisure activities (d920). Lifting and carrying objects (d430) was also frequently reported, while driving (d475) and maintaining a body position (d415), preparing meals (d630), moving around (d455), caring for house hold objects (d650).

A recently released study suggests that neck issues are a major cause of reduced work ability among employees. The intricate connections between personal and job-related risk elements, including the type of work, dissatisfaction with the job, uncomfortable work positions, inadequate physical conditions at work, emotional distress, and the employee's ethnic background, could be linked to neck discomfort.

Hae Jung Lee, Ju Min Song stated that one notion was frequently found in many items with varying intensity or frequency in clinical measurement tools, and each item might be associated with a single ICF code. This study demonstrated that the SF36's sequential items, such as climbing stairs from one flight to multiple flights (item 6) and (item 7), contained the degree of completing specific activities.[14]

Hae Jung Lee, Ju Min Song discovered that, while to varying degrees, some of the items in SF-36 contain the same idea. This might point to variations between specialized and general-purpose tools. SF-36 contained dressing (item 12), which was related to dressing (d540) and putting on clothing (d5400), respectively. Other items were related to washing (d510), washing body parts (d5100), and bathing (item 12) in SF-36. They are all based on the same idea, but because the measurements have different goals or contents, they could be associated with distinct ICF codes.[14]

In this study, domains of activities and participation's component of ICF such as "d1 Learning and applying knowledge", "d3 Communication" were not related to the any domain of the SF36. So d1 and d3 domains of activities and participation of ICF were unrelated domains of ICF. d1 and d2 domains of activities and participations component was not related but other domains such as sensory function and pain, mental function etc. of components of ICF such as body structure and function etc. could relate with the domains of SF36.

Body pain was the measure concern part of any activities and participations of subjects but this was not covered in the domains of the activities and participation component of ICF. But it considered as part of the other component of ICF. One question of body pain domain of SF36 were not related with the domains of activities and participation of ICF. Body pain domains were considered as the gaps in between these two assessment scale in this study.

Pain domain of SF 36 had two questions. One question which was related to whole body pain, was not relate with the questions of the domain of the ICF and other question which was pain interfere work activity and emotionally, of SF36 relate with the mostly all domain of the ICF assessment scale.

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et al. found that as the idea behind carrying out the activity is the same for both items (d430 lifting and carrying objects and d4551 climbing), they could be assigned to the same ICF category. However, the extent or intensity of the activities was not directly associated with an ICF code because some activities' intensities are not included in ICF. These outcomes agreed with those from earlier research. But walking distances of one block (item 11) and over 1.5 km (item 9) were associated in the ICF with d4500 walking short distances and d4501 walking long distances, respectively.

During assessment we found some item of component of ICF such as "d110 watching", "d160 focusing attention" of "d1 Learning and applying knowledge" and "d360 using communication devices and techniques" of "d3 Communication" were affected in patients of cervical postural syndrome. And same found with SF36 assessment scale. Items of SF36 such as body pain and reported health transmission were involved during assessment.

In result statistically SPSS 2.1 version used to compare the related domains of ICF and SF36. Analysis was carried out in 5 categories such as (i) Comparison between domain of ICF "D7" and SF36 "SF" (ii) Comparison between domain of ICF "D9'' and SF36 "PF+SF". iii) Comparison between domain of ICF "D2'' and SF36 "MH+VT". iv) Comparison between domain of ICF "D8+D6+D2+D4'' and SF36 "PF+RF". v) Comparison between domain of ICF "D2+D4+D5+D6+D8+D9" and SF36 "BPb+RE". The result showed significant the International Classification of Functioning, Disability, and Health (ICF) is more comprehensive than the SF-36, as it addresses a broader range of aspects related to human health and well-being, particularly in the context of disease condition.

CLINICAL RELEVENCE

The aim of this study was to compare the International Classification of Functioning Disability and Health corset and short form health survey 36 in Cervical Postural Syndrome. This study will be helpful in complete assessment of CPS.

Limitations of the Study

In this study only one QOL assessment tool was used to compare domains of activitie and participations component of ICF.

This study did not use as intervention protocol

Future Scope of the Study

This study can be carried out with the other QOL assessment tool to compare the formulated ICF core set for CPS.

This study can be done as intervention study.

CONCLUSION

Most of the domain of SF 36 of health related questionnaires align well with the activities and participations domains of ICF when it assessing the individual with cervical postural syndrome. Domains of SF36 linked with the domains of ICF, through which Related domains, unrelated and gaps were founded. Related domains of SF 36 compared with the related domains of activities and participations of ICF. Result was significant which shows that the ICF was the better assessment tool as compared to the SF36. Although SF36 was valid and reliable assessment tool to cover health related QOL for CPS but ICF covered all aspects of health, disability and functioning in profound way. Hence, ICF was better than SF36 assessment tool. This study accepted the alternate hypothesis and rejecting null hypothesis.

Conflict of Interest: There was no conflict of interest in this study.

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