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Assessment of Quality of Life among Patients with Peripheral Spondyloarthropathy

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Abstract

Original Research Article

Background: Peripheral spondyloarthropathy refers to spondyloarthropathy with predominant peripheral (arthritis, enthesitis or dactylitis) involvement which leads to significant disability. **Objective:** To assess the quality of life in patient with peripheral spondyloarthropathy (pSpA). **Methodology:** It was a cross sectional study conducted in the Department of Physical Medicine and Rehabilitation, BSMMU, Dhaka, from March 2021-February 2022. A total of 105 patients diagnosed with pSpA attending the study place were purposively selected for the study. Patients with concurrent systemic inflammatory rheumatic disease such as RA, SSc, lupus, Dermatomyositis were excluded from the study. Disease activity was measured by the validated Bengali version of The Ankylosing Spondylitis Disease Activity Score (ASDAS), including C-reactive protein (ASDAS-CRP) while health related quality of life was assessed by the validated Bengali version of Short Form Health Survey (SF) 12v2 instrument. **Results:** The mean age of the study participants was 38.8(±9.8) years where 68 (64.8%) were male. The mean duration of disease was 4.3(±3.3) years where 55 (52.4%) had up to 3 years' duration of disease. The mean ASDAS-CRP was 3.9 ±0.8 where 69(65.7%) had very high Disease Activity Score. All (100.0%) study participants had arthritis and inflammatory back pain. HLAB27 was present in most of the study participants (N=101, 96.2%) and 99 (94.3%) had enthesitis. The mean Physical Component Summary (PCS) and Mental Component Summary (MCS) was 34.0(±7.8) and 41.3 (±7.7) respectively. There was weak negative correlation between age and PCS of SF-12 scores (r=-0.233, p=0.017). There was negative correlation between duration of the disease and PCS of SF-12 scores (r=-0.339, p<0.001) and MCS (r=-0.290, p=0.003). Again, there was moderate inverse correlation ASDAS-CRP and PCS of SF-12 scores (r=-0.406, p<0.001) and MCS of SF-12 scores (r=-0.461, p<0.001). **Conclusion:** Majority of the patients with peripheral spondyloarthritis had very high Disease Activity Score. The mental health component of these patients were better than physical health component. Both physical and mental health component correlated inversely with duration of the disease. There was moderate inverse correlation between ASDAS-CRP and Physical Component Summary (PCS) and Mental Component Summary (MCS) of SF-12 scores.

Key words: Peripheral spondyloarthropathy (pSpA), Ankylosing Spondylitis Disease Activity Score including C-reactive protein (ASDAS-CRP), Short Form Health Survey (SF-12v2)

INTRODUCTION

Ankylosing spondylitis (AS), psoriatic arthritis (PsA), SpA associated with inflammatory bowel disease (IBD), reactive arthritis (ReA), juvenile onset SpA, and undifferentiated SpA are spondyloarthritides (SpA). Symptoms include inflammation of the axial joints, asymmetric oligoarthritis (particularly in the lower limbs), and enthesitis [1]. Genetic polymorphism and environmental variables combine to cause spondyloarthritis. Various types of spondyloarthritis may have different gene-environment interactions. Human leukocyte Antigen-B B27 is the most common allele. TNF is the main treatment target for inflammation [2]. Europe had 23.8 cases per 10000, Asia 16.7, North America 31.9, Latin America 10.2, and Africa 7.4. 1.30 to 1.56 million cases were estimated in Europe and Asia, respectively [3]. 80% of individuals had symptoms before 30 and 5% before 45 [4]. In Bangladesh, males are more afflicted by Ankylosing spondylitis than females [5]. SpA may be classified into axial SpA (axSpA), which mostly affects the spine and sacroiliac joints (SIJ), and peripheral SpA (pSpA), which is characterized by arthritis, enthesitis, and/or dactylitis. With involvement of the thoracic spine (including costovertebral and costotransverse joints) and enthesitis at the costosternal and manubriosternal joints, patients may have chest discomfort exacerbated by coughing or sneezing. Early-stage AS may cause mild to moderate chest compression [6]. SpA patients often have extra musculoskeletal manifestations (EMMs), such as Acute anterior uveitis (AAU), psoriasis, or IBD [7]. pSpA is sex-equal. Lower extremity asymmetrical large joint oligoarthritis was prominent in those under 40 (60% were 30). Some exhibited soft tissue and/or extra-articular SpA symptoms (36%) and family history (20%). Unlike axial axSpA/AS, pSpA has limited root/central joint involvement. Otherwise, arthritis was identical [8]. Typical articular involvement in peripheral SpA is asymmetric, mono- or oligoarticular (fewer than five joints) inflammatory arthritis that affects the lower limbs more than the upper limbs [9]. Enthesitis is a spondyloarthritis symptom. Chronic enthesis inflammation induces cystic and erosive bone changes. Overgrowth of bone, periostal alterations, spurs, and subperiostal new bones lead to syndesmophytes. Enthesis areas are painful and sensitive to palpation. Enthesitis discomfort reduces quality of life [10]. HRQoL is widely employed in clinical trials and health care research to measure the effect of chronic disorders. [11]. Generic and specialised HRQoL surveys exist [12], disease, patient, function, or problem-specific tools exist. Generic measurements aren't disease- or population-specific and may be employed across illnesses [13]. Generic tools may test and compare HRQoL across populations, independent of underlying diseases [14]. Medical outcome study 36-item Short form (SF 36) Health survey is the most extensively used generic measure. The SF 36 is long and some participants may have trouble understanding the questions, according to years of experience. The SF 12v1 uses 12 items from each of the eight SF 36 subscales with the same performance. It's been certified in numerous European nations, Iran, and Morocco. Recent validation of SF 12v2 in Bengali [15].

OBJECTIVES

To assess the quality of life in patient with peripheral spondyloarthropathy (pSpA).

METHODOLOGY

This cross sectional study was conducted at Department of Physical Medicine and Rehabilitation, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh. Total number 105 patients in a period of one year were included in this study. Patients diagnosed with pSpA attending the department of Physical Medicine and Rehabilitation, BSMMU, Dhaka were selected by following the purposive sampling methods. Both the male and female patients' diagnosed pSpA according to the ASAS criteria, age 18-65 are included in this study. Patients who have concurrent systemic inflammatory rheumatic disease such as RA, SSc, lupus, Dermatomyositis, Medical comorbidity that would render the patient unable to participate fully in study procedures (e.g., uncontrolled Diabetes Mellitus, acute stroke, recent myocardial infarction, terminal conditions such as end-stage renal disease, congestive heart failure or malignancy) and Cognitive impairment were excluded from this study.

Data Collection and Analysis

Patients with pSpA visiting the Department of Physical Medicine and Rehabilitation, BSMMU, Dhaka throughout the indicated time were enrolled. Peripheral spondyloarthropathy according to ASAS peripheral SpA criteria. ASDAS-CRP measured disease activity. Patient's CRP was measured no CRP records. Written consent was taken from each patient. ASDAS-CRP was measured. Data were analyzed by SPSS version 26.0. Study results were provided by frequency, table percentages. Continuous variable means and categorical variable frequency distributions were employed sample characteristics comparing two groups. Student t test, one way Anova, Pearson correlation was applied to measure SF12v2's correlation. ASDAS-CRP values, patient age, and illness duration PCS/MCS compared as significant by p-value. Ethical clearance was taken from the Ethical Committee of the concerned hospital

RESULTS

Table 1: Distribution of study participants by age (N=105)

Age group(in years)	Frequency (n)	Percentage (%)
Up to 40 yrs.	54	51.4
41-50 yrs.	47	44.8
>50 yrs.	4	3.5
Mean ±SD Age	38.8 ±9.8	
Average	18-65	

Table 1 shows that more than half of the study participants (51.4%) were younger than 40 years, 47(44.8%) were from 41-50 years' age group and few (n=4, 3.8%) were from>50 years' age group. The mean age of the study participants was 38.8(±9.8) years which ranged from 18-65 years.

Table 2: Comparison of PCS and MCS among different age groups (N=105)

Age group(in years)	PCS	MCS
Up to 40 yrs.	35.4±7.3	42.3±7.0
41-50 yrs.	32.7±8.3	40.3±8.4
>50 yrs.	30.5±7.5	38.8±7.2
P value	**0.143**	**0.360**

Table 2 showed that there was no significant statistical difference among different age groups regarding PCS and MCS of SF-12 as p>0.05.

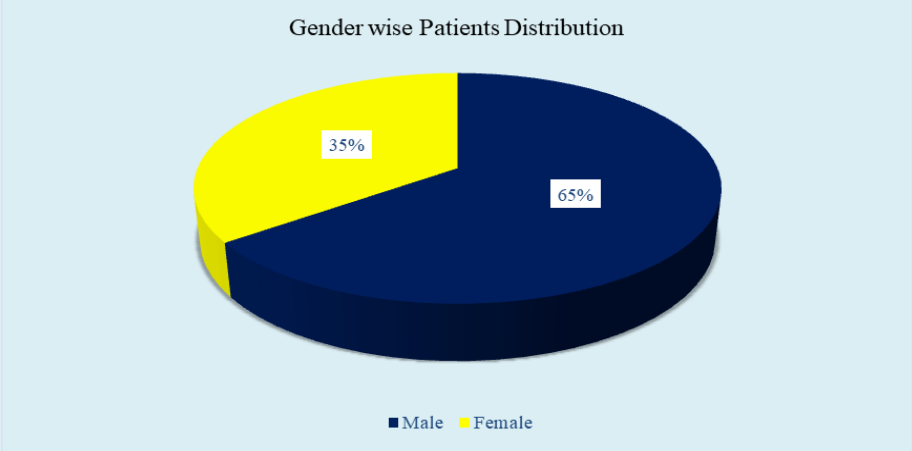

Figure1: Distribution of study patients by gender (N=105)

Figure 1 shows the distribution of study participants by gender. Among the 105 study participants, 68(64.8%) were male and 37(35.2%) were female.

Table 3: Comparison of PCS and MCS between male and female (N=105)

SF12 Components	Male	Female	P value
PCS	34.1±7.9	34.0±7.6	0.970
MCS	41.3±8.0	41.1±7.1	0.874

Table 3 showed that there was no significant statistical difference between male and female regarding PCS and MCS of SF-12 as p>0.05.

Table 4: Distribution of study participants by marital status (N=105)

Marital status	Frequency (n)	Percentage (%)
Married	93	88.6
Unmarried	12	11.4

Table 4 showed the distribution of study participants by marital status. Among the 105 study patients, the majority (88.6%) were married while11.4%wereunmarried.

Table 5: Comparison of PCS and MCS between married and unmarried study participants (N=105)

SF12 Components	Married	Unmarried	P value
PCS	33.6±7.9	37.4±6.4	0.118
MCS	41.4±7.6	40.4±8.6	0.683

Table 5 showed that there was no significant statistical difference between married and unmarried study participants regarding PCS and MCS of SF-12 as p>0.05.

Table 6: Distribution of study participants by Body Mass Index BMI (N=105)

Body Mass Index	Frequency (n)	Percentage (%)
Normal	53	50.5
Overweight	37	35.2
Obese	15	14.3
Mean ±SD (Kg/m2)	25.4 ±4.0	
Range	19.9-39.0	

Table 6 showed that half (50.5%) of the study patients had normal BMI while more than one-third (35.2%) of study patients had overweight. The mean BMI of the study patients was 25.4 (±4.0) Kg/m^2which ranged from 19.9-39.0Kg/m2.

Table 7: Comparison of PCS and MCS among different BMI groups (N=105)

Body Mass Index	PCS	MCS
Normal(18.5-24.9)	35.4±8.7	41.0±8.2
Overweight (25.0-29.9)	31.9±6.2	41.7±7.8
Obese (30.0 and above)	34.2±7.2	40.9±5.7
P value	**0.112**	**0.903**

Table 7 showed that there was no significant statistical difference among different BMI groups regarding PCS and MCS of SF-12 as p>0.05.

Table 8: Distribution of study participants by duration of disease (N=105)

Duration of disease(in years)	Frequency (n)	Percentage (%)
Up to 3.0	55	52.4
3.1-6.0	27	25.7
>6.0	23	21.9
Mean ±SD	4.3 ±3.3	
Range	0.5-15.0	

Table 8 showed that more than half (52.4%) study participants had up to 3 years' duration of disease, one fourth (25.7%) study participants had 3.1-6.0 years' duration of disease and 23(21.9%) had >6.0 years' duration of disease. The mean duration of disease of the study participants was 4.3(±3.3) years which ranged from 0.5-15.0 years.

Table 9: Comparison of PCS and MCS among different disease duration (N=105)

Duration of disease(in years)	PCS	MCS
up to 3.0	37.6±5.6	43.8±7.0
3.1-6.0	29.8±8.9	39.3±8.2
>6.0	30.5±7.2	37.6±6.7
P value	**<0.001**	**0.001**

Table 9 showed that the PCS of the study participants were significantly higher in study participants who had disease duration up to 3 years than others (p<0.001). Again, the MCS of the study participants were significantly higher in study participants who had disease duration up to 3years than others (p=0.001).

Table10: Distribution of study participants by Ankylosing Spondylitis Disease Activity Score (ASDAS-CRP) (N=105)

Activity Score(ASDAS-CRP)	Frequency (n)	Percentage (%)
Low(1.3-2.0)	0	0.0
High(2.1-3.5)	36	34.3
Very high(>3.5)	69	65.7
Mean ±SD(Range)	3.9±0.8(2.5-5.5)	

Table 10 showed one third of the study participants (n=36, 34.3%) study participants had high Disease Activity Score while 69 (65.7%) study participants had very high Disease Activity Score. No study participant had low Disease Activity Score. The mean ASDAS-CRP of the study participants was 3.9 ±0.8 which ranged from 2.5-5.5.

Table11: Distribution of study participants by ASAS criteria for the diagnosis of peripheral Spa

ASA Scriteria	Frequency (n)	Percentage (%)
Arthritis	105	100.0
Inflammatory back pain	105	100.0
HLAB27	101	96.2
Enthesitis	99	94.3
Family history of spondyloarthropathy	78	74.3
Dactylitis	71	67.6
Sacroiliitis by imaging	59	56.2
Preceding infection	63	60.0
Psoriasis	3	2.9
Crohn/colitis	4	3.8
Uveitis	2	1.9

Table 11 showed among the 105 study participants, all (100.0%) study participants had arthritis and inflammatory back pain. HLA B27 was present in most of the study participants (n=101, 96.2%) and 99 (94.3%) had enthesitis. Family history of spondyloarthropathyv was present in 78 (67.6%) study participants. Majority of the study participants had dactylitis (67.5%), sacroiliitis (56.2%) and preceding infection (60.0%). Few had psoriasis (2.9%), Crohn/colitis (3.8%) and Uveitis (1.9%).

Table 12: SF-12 scores of study participants with peripheral Spa (N-100)

SF-12	Mean ±SD
Physical Component Summary(PCS)	34.0± 7.8
Mental Component Summary(MCS)	41.3 ± 7.7

Table 12 showed that the mean Physical Component Summary (PCS) of the study participants was 34.0 (±7.8) and the Mental Component Summary (MCS) was 41.3(±7.7).

Table 13: Correlation between age of the study participants and SF-12 scores of study participants with peripheral Spa (N=105)

Age of the study participants	r	p
Physical Component Summary(PCS)	-0.233	0.017
Mental Component Summary(MCS)	-0.063	0.522

Table 13 showed the negative correlation (r=-0.233) between age of the study patients. Physical component summary (PCS) of SF-12 score. Pearson correlation coefficient test showed that this correlation was significant (p=0.017). However, There no significant correlation between age of the study participants and Mental Component Summary (MCS) (r=-0.017, p=0.552).

Table 14: Correlation between duration of disease and SF-12 scores of study participants with peripheral SpA (N=105)

Duration of disease	r	p
Physical Component Summary(PCS)	-0.339	<0.001
Mental Component Summary(MCS)	-0.290	0.003

Table 14 showed the negative correlation (r=-0.399) between of the duration of disease and physical component summary (PCS) of SF-12 scores. Pearson correlation coefficient test showed that this correlation was significant (p<0.001). Beside that the negative correlation showed between the duration of diseases and mental component summary (MCS) was significant (r=-0.290, p-0.003).

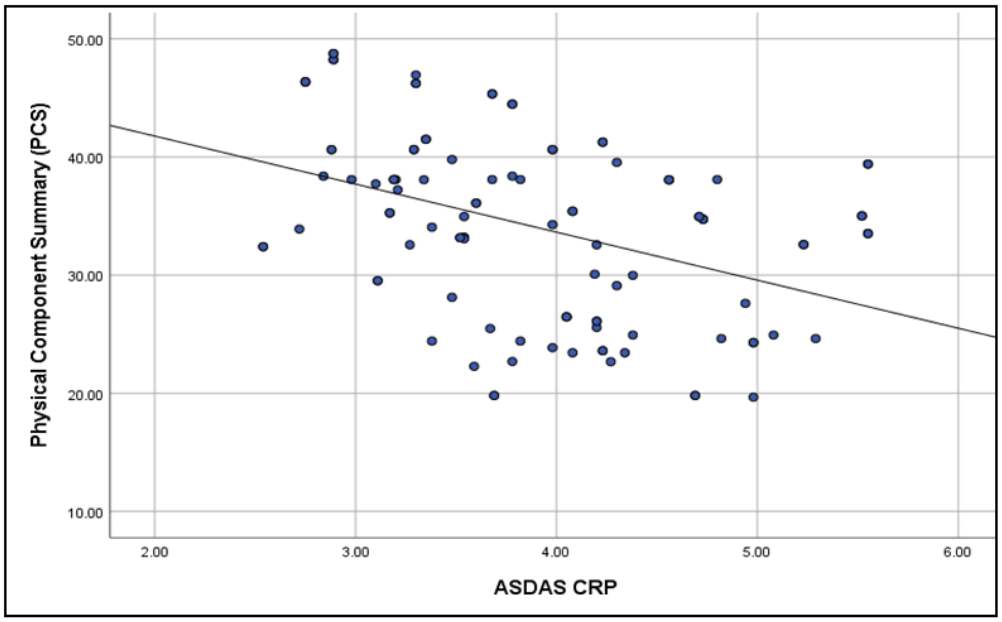

Figure II Correlation between ASDAS-CRP and Physical Component Summary (PCS) of SF-12 (N=105)

There was moderate negative correlation(r=-0.406) between ASDAS-CRP and Physical Component Summary (PCS) of SF-12 scores. Pearson correlation co efficient test showed that this correlation was significant (p<0.001).

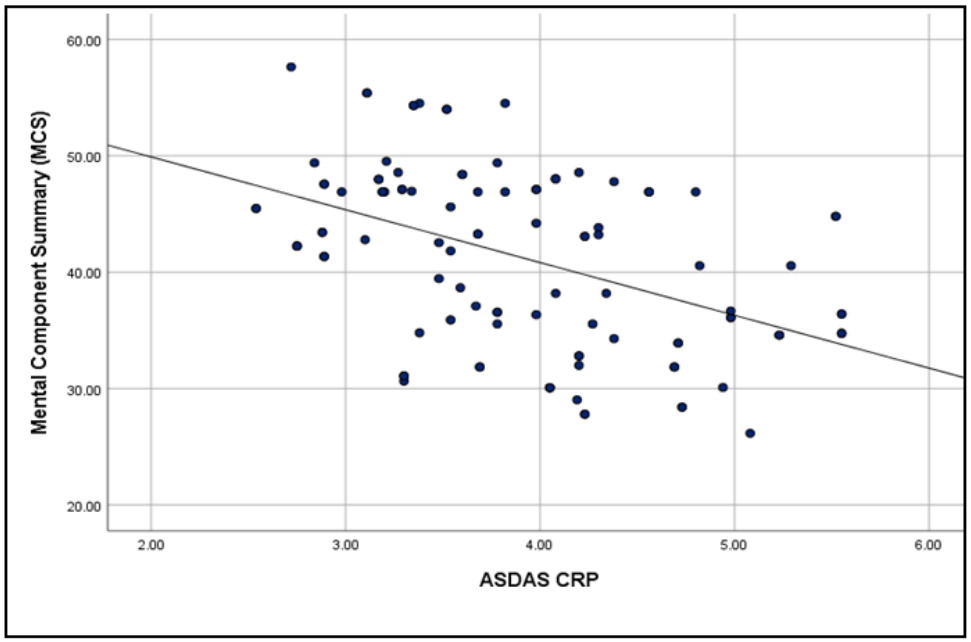

Figure III: Correlation between ASDAS-CRP and Mental Component Summary (MCS) of SF-12 (N=105)

There was moderate negative correlation(r=-0.461) between ASDAS-CRP and Mental Component Summary (MCS) of SF-12 scores. Pearson correlation coefficient test showed that this correlation was significant (p<0.00).

DISCUSSION

Peripheral spondyloarthritis involves the periphery (arthritis, enthesitis, dactylitis) [9]. This research assessed peripheral neuropathy patients'

quality of life. 105 participants participated in this cross-sectional research. pSpA-diagnosed. Bengali version monitored disease activity. ASDAS, C-reactive protein ASDAS-CRP and the validated, Bengali version of SF-12v2. Study most peripheral spondyloarthritis patients reported high, DALY. Better mental wellness than Physique. Mental and physical health are negatively related illness duration-correlated. Moderate inverse correlation ASDAS-CRP and PCS/MCSF-12 MCS summary. More over half of the 38.8 (9.8)-year-old research participants were women 51.4% of participants were under 40. Hegde's Indian research86.6% were under 40, according to et al. Other research with peripheral Spondyloarthritis [16]. Two-thirds of the 105 research participants (64.8%) men [8]. Observed male-to-female 2.6-to-1 [16] also found this. Half (50.5%) of research participants had a BMI of 25.4 (4.0) kg/m2.Participants' BMIs were normal [8] when the mean BMI was 24.8 kg/m2 (normal). Participants' mean illness duration was 4.3 (3.3) years.52.4% of research participants had illness for up to 3 years, whereas 21.9% illness lasted >6 years The clinical trial about 5 years of peripheral spondyloarthritis. No patient had a low ASDAS-CRP score (3.9 0.8). Two-thirds showed high disease activity score. In another research [8] the mean ASDAS-CRP was 2.2.2017[8] studied non-psoriatic patient's inflammation or infection, whereas the current research included ASAS patients ASDAS-CRP mean score. This research found all (100.0%) research subjects experienced arthritis [17] showed 92.0% of patients had arthritis; Hegde et 96.7% had arthritis, per al. [18]85.2% had arthritis. All research subjects had inflammatory back pain. Research 85.0% of patients experienced inflammatory back pain, according [16] HLA-B27 and articular and extra-articular SPARKS [19]. The majority of student (96.2%). 71.0 percent had HLA B27.92%. [16] [17] Most research participants had enthesitis (94.3%). Many Enthesitis is rare, research show [8] and [16]20.0% to 26.7% of patients experienced enthesitis. Peripheral spondyloarthritis is characterized by dactylitis [9]. Most individuals had dactilitis (67.5%). Result [18] [20]. This may be owing to various patient selection criteria studies. Few individuals had psoriasis (2.9%), Crohn/colitis (3.8%), and Uvetis (1%). (2%) [16] showed reduced frequency of findings 56.2% of individuals in this research had sacroiliitis (revealed in imaging) [16] studied peripheral spondyloarthritis axial involvement (pSpA)MRI found sacroiliitis in 36.0% of patients. SIJ prevalence the prolonged illness duration in the current study compared to the study. The mean SF-12 PCS was lower than Mental Component Summary (34.0 vs 41.3). In Brazil, enthesitis may reduce QOL. patients. 94.3% of research participants had enthesitis lower SF-12v2 score QOL was compromised in as sufferers most affected by periarthritis According to Yang's systematic review. The pooled mean of MCS was greater than the pooled mean PCS Despite severe impairment, Patients adapt effectively to their slowly advancing illness. ASDAS-CRP and PCS have a moderate negative connection ASDAS-CRP, MCS (r=-0.406, -0.461). Garrido-Cumbrera, high disease activity is a risk factor for poor health, according to et al. Mood. High disease activity predicts low quality spondyloarthritis. [21] The research found no link between SF-PCS and MCS.12 socio-demographic [22] revealed that women had lower life satisfaction. They claimed women dislike the condition more than males. This all (100%) research participants of patients in this research experienced arthritis and inflammatory back pain (94.3%)Enthesitis [23] identified a link between the sites and peripheral symptoms. Enthesitis boosted disease activity functional capability and life quality decrease. Those Enthesitis had higher Ankylosing Spondylitis Quality of Life ratings. As most patients had enthesitis, no PCS and MCS of SF-12 have significant sociodemographic variables. This research demonstrated a negative connection between PCS and MCS length SF-12s. Lower illness duration improved PCS and MCS.As illness progressed, PCS symptoms deteriorated SF-12 MCS.

CONCLUSION

The present study found that majority of the patients with peripheral spondyloarthritis had very high Disease Activity Score. All had arthritis and inflammatory back pain while most of them had enthesitis and were HLAB27 positive. The mental health component of these patients was better than physical health component. There was negative correlation between age of the study participants and Physical Component Summary (PCS) of SF-12 scores. Both physical and mental health component inversely correlated with duration of the disease. There was moderate inverse correlation between ASDAS-CRP and physical component summary (PSC) and mental component summary (MCS) of SF-12 scores.

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