RELATION OF ACTIVITY SCORE (DAS28) WITH FUNCTIONAL ASSESSMENT IN PATIENTS WITH RHEUMATOID ARTHRITIS

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ABSTRACT:

Background: Rheumatoid Arthritis (RA) is characterized by chronic inflammation of joints with extra-articular systemic involvement. When managing RA, disease activity is assessed by (DAS28) score at regular intervals and treatment is changed according to disease activity. Although many studies have stressed upon DSA28 score to monitor improvement of RA on treatments, few studies have evaluated whether there is a concurrent improvement of the daily life functions and sleep of the patients or not

Aim of the work: To assess the relation between RA disease activity using DAS28 (ESR) score with functional status reflected by activities of daily living (ADLs) and sleep quality scores.

Patients and Methods: Fifty-four RA patients underwent history, clinical examination, investigation, and assessed for disease activity using DAS28 (ESR) score, basic and instrumental ADLs (BADLs & IADLs), and sleep quality by medical outcome study sleep scale (MOSS-S).

Results: Age of patients ranged from (20- 66) years with mean of 46.11 ± 10.19 years, disease duration ranged from (0.25- 28) years with mean of 5.5±2.5. The mean DAS28 was 4.63± 1.43. BADLs showed twenty-one patients with moderate impairment with a percent of 38.8%, and severe impairment in five patients with a percent of 9.2%. IADLs showed moderate impairment in twenty-five patients with a percent of 46.3% while there was no severe impairment. Highly significant correlation (r= 0.564, p-value < 0.01) was found between increased BADL score and increased IADL score, and between increased MOSS score and decreased BADL score (r=0.532, p-value < 0.01), and between decreased IADL score and MOSS score (r=0.485, p-value < 0.01).

Conclusion: Functional ADLs and sleep quality are strongly correlated with disease activity in RA patients and they are multifactorial in origin and related to pain, fatigue, depression, educational level and physical deformity.

Keywords: Rheumatoid Arthritis patients, Disease Activity, Quality of life, Sleep.

INTRODUCTION:

RA is an autoimmune disorder characterized by chronic inflammation of joints such as: small joints of hands; proximal interphalangeal (PIP), metacarpophalangeal (MCP) joints, and wrist. In addition to joints affection, there is extra-articular systemic involvement[1]. When managing RA, treatment is changeable depending on disease activity using disease activity score in 28 joints (DAS28) that measure tender and swollen joint numbers, patient global

assessment (VAS), and erythrocyte sedimentation rate (ESR)[2]. Despite advanced treatment regimens, which have been effective using DAS28 score, it was found that patients still have symptoms on daily basis and affection of activities of daily life and sleep. Few studies have evaluated whether there is a concurrent improvement of the daily life functions and sleep of the patients or not [3,4&13].

AIM OF THE WORK:

To assess the relation between DAS28 (ESR) score with ADL and sleep quality in RA patient.

PATIENTS AND METHODS:

This study included 54 RA patients who were collected from outpatient clinic of physical medicine, rheumatology and rehabilitation (PRR) department of Ain Shams University Hospitals. Written informed consent was taken from all patients and approval from the ethical committee.

Exclusion criteria: All other rheumatological diseases, pre-existing debilitating diseases fractures, trauma, other orthopedic conditions and endocrine diseases: Diabetes mellitus, Thyroid disease etc.

Patients were subjected to the following:

1. Full medical history taking: full medical history taking with special emphasis on history of joint pain and swelling, age at onset, drugs history, family history of RA.

2. Clinical Examination: General and Local examination.

3. Assessment of Disease Activity Score (DAS28) by calculating tender joint numbers in 28 joint sites (bilateral shoulder joint, elbow joint, wrist joint, MCPs, PIPs, and knee joint), Swollen joint count at the same sites, ESR level (mm/hr), visual analogue scale for global health (VAS-GH) (patient assessment of his own condition using a 100 scale with 0=best, 100=worst). The results are put into a complex mathematical formula to produce the overall score ranges as; remission (<2.6), mild (2.6-3.2), moderate (3.2-5.1), or severe disease activity (>5.1).

4. Assessment of Activity of Daily Living Scale (ADL) Score: which has two aspects, as an index of independence using BADLs which evaluates; ambulation, feeding, dressing, personal hygiene, continence, and toileting. The second aspect is assessing the activities that requires organizational skills using IADLs which evaluates; transportation and shopping, managing finances, meal preparation, housecleaning, laundry, and home maintenance, managing communication with others and, managing medications. Scoring method is (1 or 0) points for each element of the above to produce overall score as; independent, moderate impairment of functions, and marked impairment (dependent).

5. Assessment of medical Outcomes Study sleep scale (MOS-Sleep): To provide a reflection for sleep quality along the past 4 weeks. It consists of 12 items; time to fall asleep, hours of sleep each night, sleep restlessness, awakening during sleep, time to fall asleep, trouble staying awake, taking naps, feeling drowsy, enough sleep, feel rested, getting amount sleep needed, snoring during sleep, and awakening short of breath or headache. Scores were calculated by averaging item scores for all patients and transforming it so that the lowest possible score which was 0 and the highest possible score which was 100, using the formula 100 x (observed score- minimum possible score)/ (Maximum possible score - minimum possible score). High scores reflected more of impairment.

6. Laboratory and radiological investigations: Complete blood count (CBC), random blood glucose, ESR, Liver Function Tests, Kidney Function Tests, and Plain X-Ray on hands.

Statistical analyses: All data were collected, tabulated, and statistically analyzed. Analysis of data was carried out by Statistical Package for Social Science (IBM SPSS) version 23 as follows: Description of quantitative variables as mean, standard deviation (SD) and range. Description of qualitative variables as number (no.) and percentage.(%) Linear Correlation co-efficient (r) was used for detection of correlation between two quantitative variables in one group. P =Insignificant> 0.05. P = Significant<0.05. P= Highly significant <0.01

RESULTS:

This study included 54 patients. Disease duration ranged from (0.25- 28) years with mean of 5.5±2.5. Age of patients ranged from (20- 66) years with a mean of 46.11 ± 10.19 years. Fifty-one patients (94.4%) were females. Forty-nine (90.7%) of the patients were housewives. Patients with mild, moderate and severe RA took part in this study. Table (1) shows the descriptive data of patients.

Table (1): Descriptive data of study population:

Age (Years)	Mean± SD	46.11 ± 10.19
	Range	20 – 66
Sex	Female	51 (94.4%)
	Male	3 (5.6%)
Education	Illiterate	18 (33.3%)
	Educated	36 (66.66%)
Duration of RA (years)	Median (IQR)	5.5 (3 – 8)
	Range	0.25 – 28

On assessment of ADLS, mean BADL Score was (4.54 ±1.30) and ranged from 1 to 6. Of which, twenty-eight patients (51.8%) had no impairment, twenty-one patients (38.8%) had moderate impairment, and five patients (9.2%) had severe impairment. Regarding IADL, Score ranged from 4 to 8 and mean score was (6.67 ±1.15), where twenty-nine patients (53.7%) showed no impairment and twenty-five patients (46.3%) showed moderate impairment while there were no severely impaired patients (Table 2).

Table (2): Data of functional status assessed by (BADL: 6 items), (IADL: 8 items) questionnaires with mean and standard deviation calculated below each:

Item	Yes/No	Patient numbers (percent)
Toilet	No	3 (5.6%)
	Yes	51 (94.4%)
Feeding	No	0 (0.0%)
	Yes	54 (100.0%)
Dressing	No	36 (66.7%)
	Yes	18 (33.3%)
Grooming	No	12 (22.2%)
	Yes	42 (77.8%)
Physical Ambulation	No	21 (38.9%)
	Yes	33 (61.1%)
Bathing	No	7 (13.0%)
	Yes	47 (87.0%)
BADL Score	Mean ± SD	4.54 ±1.30
	Range	1 – 6
Ability to use Telephone	No	0 (0.0%)
	Yes	54 (100.0%)

Shopping	No	33 (61.1%)
	Yes	21 (38.9%)
Food Preparation	No	24 (47.1%)
	Yes	27 (52.9%)
Housekeeping	No	4 (7.8%)
	Yes	47 (92.2%)
Laundry	No	0 (0.0%)
	Yes	51 (100.0%)
Mode of transportation	No	2 (3.7%)
	Yes	52 (96.3%)
Responsibility for own medication	No	0 (0.0%)
	Yes	54 (100.0%)
Ability to handle finance	No	0 (0.0%)
	Yes	54 (100.0%)
IADL Score	Mean ± SD	6.67 ±1.15
	Range	4 – 8

ADL: Activity of daily living, BADL: Basic activity of daily living, IADL: Instrumental activity of daily living, SD: Standard Deviation

Assessment of Sleep by MOSS questionnaire showed that almost thirty-two (59.2%) of our study population needed more than 30 minutes to fall asleep with an average of (5.66 ±1.60) hours of sleep per day.

As for VAS score of pain, it ranged from (0-100) with median of 50. (Note: Two patients had a score of 0). Forty-nine (90.7%) patients showed depressive symptoms (feelings of sadness, tearfulness, emptiness or hopelessness, angry outbursts, irritability or frustration, loss of interest or pleasure in most or all normal activities). Fatigue was also common and present in forty-two patients (77.8%). X- ray findings of our study population showed: periarticular osteopenia in fifty-one (94,4%) patients and erosions in twenty-five patients (46.3%). Erosions were graded according to Sharp score into; twelve patients with moderate erosions (48%), and thirteen patients (52%) with severe erosions. While there were no mild erosions.

Relation studies: Comparing between DAS28 score and functional activity scores, there was a highly significant relation (p< 0.01) between rise in DAS28 scores and decreased overall BADL score, and a significant relation (p< 0.05) between rise in DAS28 scores and decreased IADL score, while there was no significant relation (p > 0.05) between DAS28 and MOSS total score (Table 3).

Table (3): Relation between DAS28 and overall functional assessments scores:

Item		DAS28 Score			Test value	P-value	Sig.
		Remission or low disease activity	Moderate disease activity	High disease activity			
		No. = 7	No. = 30	No. = 17			
BADL Score	Mean ± SD	5.57 ± 0.79	4.77 ± 1.07	3.71 ± 1.40	7.736•	0.001	HS
	Range	4 – 6	2 – 6	1 – 6			
IADL Score	Mean ± SD	7.43 ± 0.79	6.80 ± 1.03	6.12 ± 1.27	4.112•	0.022	S
	Range	6 – 8	5 – 8	4 – 8			
MOSS total score	Mean ± SD	46.50 ± 5.56	43.33 ± 4.78	42.82 ± 8.22	0.942•	0.397	NS
	Range	36 – 52	33 – 53	28 – 61			

DAS28: disease activity score in 28 joints, BADL: Basic activity of daily living, IADL: Instrumental activity of daily living, MOSS: Medical Outcome Sleep Scale, SD: Standard Deviation.

P-value > 0.05: Non-significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant •: One Way ANOVA test

In addition, there was a highly significant relation (p< 0.01) between rise in DAS28 score and decreased feeling of rest upon waking up in the morning, a significant

relation with increased troubles falling asleep, and increased waking up with inability to sleep again. Furthermore, there was a highly significant relation (p< 0.01) between increased duration of RA and increased incidence of both periarticular osteopenia and erosions per hand x-ray findings, there was also a highly significant relation between increased duration of RA and more severity of erosions, and a significant relation (p< 0.05) between increased level of education and increased BADL score. Moreover, there was a significant relation (p< 0.05) between rise in VAS score and decreased maintaining the house alone completely or with minimal participation in housekeeping tasks. Also, there was a significant relation (p< 0.05) between rise in VAS score and decreased dressing and undressing independently, always being neatly dressed and well-groomed without assistance, and decreased being able to go about grounds or city alone (Table 4). There was also a significant relation (p< 0.05) between rise in VAS score of pain and increased feeling that the sleep was not quiet and moving restlessly, decreased getting enough sleep to feel rested upon waking in the morning, and increased awakening during the sleep time and having trouble falling asleep again.

Table (4): Relation between VAS and some elements of ADL scales:

Item		VAS (0-100)		Test value	P-value	Sig.
		Median (IQR)	Range			
BADL Score						
Dressing	No	55 (35 – 70)	0 – 100	-2.378*	0.017	S
	Yes	35 (20 – 50)	0 – 90			
Grooming	No	65 (50 – 80)	10 – 100	-2.36*	0.018	S
	Yes	45 (30 – 60)	0 – 90			
Physical Ambulation	No	60 (50 – 70)	5 – 90	-2.264*	0.024	S
	Yes	40 (30 – 50)	0 – 100			
IADL Score						
Shopping	No	60 (40 – 70)	5 – 90	-2.827*	0.005	HS
	Yes	30 (20 – 50)	0 – 100			
Food Preparation	No	60 (50 – 70)	5 – 100	-2.814*	0.005	HS
	Yes	40 (20 – 50)	0 – 90			
Housekeeping	No	75 (60 – 80)	50 – 80	-1.977*	0.048	S
	Yes	50 (30 – 60)	0 – 100			

VAS: visual analogue scale, BADL: Basic activity of daily living, IADL: Instrumental activity of daily living, IQR: Interquartile range.

P-value < 0.05: Significant; P-value < 0.01: Highly significant *: Mann-Whitney test

Correlation study: Our study showed a highly significant correlation (p< 0.01) between increased BADL score and increased IADL (Diagram 1). It also showed a highly significant correlation (p< 0.01) between MOSS score and decreased BADL score (Diagram2), and IADL score (Diagram3) (Table 5).

Table (5): Correlation between BADL score, IADL score and MOSS:

Item	BADL Score		IADL Score		MOSS total score	
	r	P-value	r	P-value	r	P-value
BADL Score	–	–	0.564**	0.000	0.532**	0.000
IADL Score	0.564**	0.000	–	–	0.485**	0.000
MOSS total score	-0.532**	0.000	-0.485**	0.000	–	–

BADL: Basic activity of daily living, IADL: Instrumental activity of daily living, MOSS: Medical Outcome Sleep Scale. P-value < 0.01: Highly significant

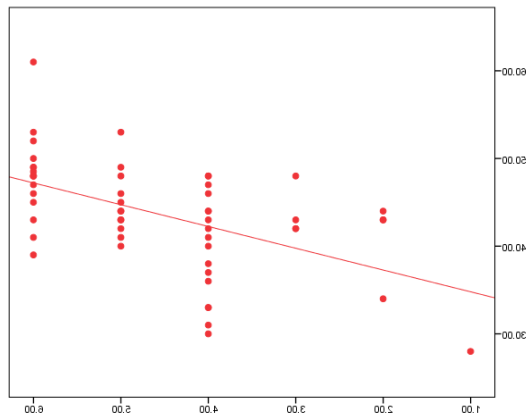**Spearman correlation coefficient**

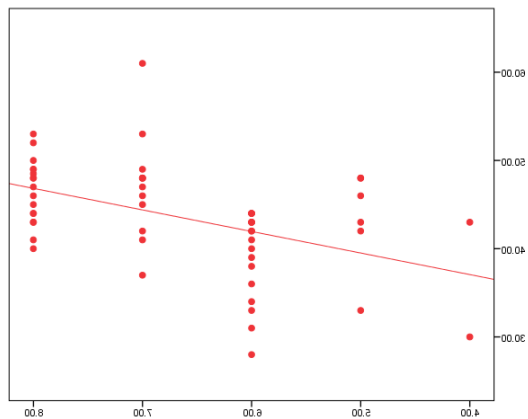Diagram (1): Correlation between sleep total score and BADL score

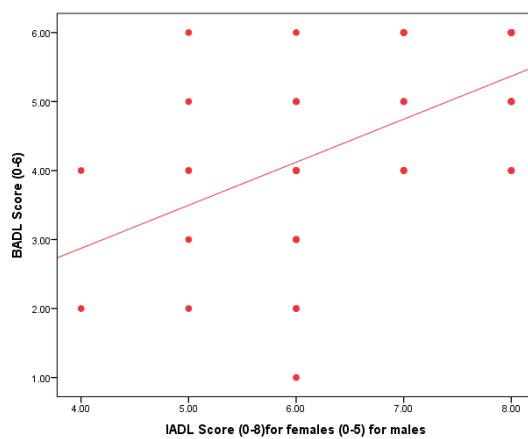Diagram (2): Correlation between Sleep total score and IADL score

Diagram (3): Correlation IADL score and BADL score

Regarding VAS of pain, there was a highly significant correlation with BADL (Diagram 4), and with IADL (Diagram 5), while there was no significant correlation ($p > 0.05$) with MOSS total score (Table 6).

Table (6): Correlation between VAS and functional scores:

Item	VAS (0-100)	
	R	P-value
BADL Score	-0.432**	0.001
IADL Score	-0.425**	0.001
MOSS total score	-0.013	0.924

VAS: visual analogue scale, BADL: Basic activity of daily living, IADL: Instrumental activity of daily living, MOSS: Medical Outcome Sleep Scale.

P-value > 0.05: Non significant; P-value < 0.01: Highly significant

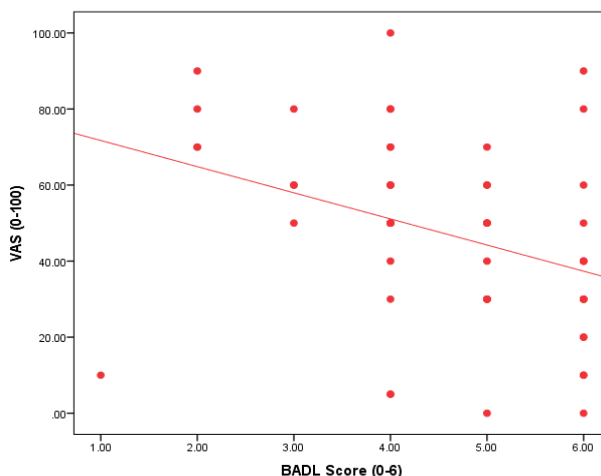**Spearman correlation coefficient**

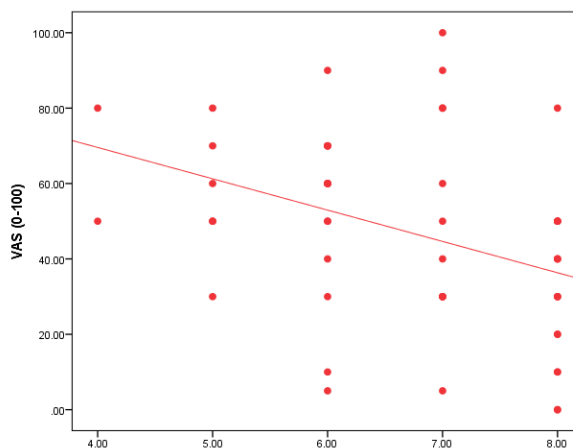Diagram (4): Correlation between VAS score and BADL score

Diagram (5): Correlation between VAS score and IADL score

DISCUSSION:

RA is aggressive and disabling. Despite recent advances in the treatment of RA, functional disability (FD) in patients with RA is common *(Myasoedova et al., 2019)*[4]. When we assessed functional status, we found that regarding BADL, twenty-eight (51.8%) patients had no impairment, twenty-one (38.8%) had moderate impairment, and five (9.2%) patients had severe impairment. Regarding IADLs, there were twenty-nine (53.7%) patients with mild impairment and twenty-five (46.3%) patients with moderate impairment while there were no severely

impaired patients. Most affected element of BADL is dressing, as thirty-six (66.7%) patients reported difficulty getting dressed mainly due to joint pain in upper limbs specially elbows and to lesser extent due to deformity. This followed by twenty-one (38.9%) impairment in ability to move from one position to another and walk independently. On the other side the most affected element of IADLs was shopping in thirty-three (61.1%) patients, this followed by difficulty in food preparation which was prevalent twenty-four (47.1%) patients. These results are parallel with *Jasani et al. (2020)* [5] who found that up to 90% of their patients felt challenges in house chores, often felt sad, angry and tired. Furthermore, 70–80% of their patients had difficulty in walking, needed rest, and had difficulty in dressing. When we calculated the total scores of functional assessment scales, we found an overall moderate impairment in basic activities with an average total score of BADL of (4.54 ±1.30). In addition to overall mild impairment of instrumental activities with an average total score of IADL of (6.67 ±1.15). These results reflect mild to moderate affection of ADL, and consecutively mild to moderate affection of the quality of life. These findings summon the results of a study done by *Gamal et al. in (2016)*[6] on 86 Egyptian RA patients which found impairment of all the items of short form 36 scale of quality of life, which indicated an overall impairment. *Boonen and Severens, 2011*[7] also stated that RA cause reduced quality of life and it is associated with high disease activity. We also found that RA activity, as measured by DAS28, was very high in seventeen (31.4%) patients, moderate in thirty (55.5%), low in three (5.5%), and in remission in four (7.4%) patients. We specifically found a significant and a highly significant relations between rise in DAS28 score and affection of BADLs elements (dressing & grooming). When we studied the overall relation of DAS28 with the results of the overall functional assessment scores, we

found a strong relation between rise in disease activity and increased functional affection reflected by a highly significant relation (P- < 0.01) between DAS28 scores and BADL score, and a significant relation (P- < 0.05) between DAS28 scores and IADL score. These findings are comparable with *Myasoedova et al. in (2019)*[4] who conducted a study on 586 patients with RA to assess the activities of daily living and compared them to 531 healthy controls and found that incidence of functional disability and affection of ADL was much higher in RA patients compared to healthy controls. All the above studies are consistent with a meta-analysis done by *Matcham et al. in (2014)*[8] that included 22,335 patients and found that RA patients have a much-reduced quality of life.

When we conducted history taking and clinical examination to our patients, we found depressive symptoms (feelings of sadness, tearfulness, emptiness or hopelessness, angry outbursts, irritability or frustration, loss of interest or pleasure in most or all normal activities) in forty-nine (90.7%) of our patients. This recalls a result of a systemic review *in (2020) by Machin et al.* [9] who involved a total of 7452 patients, 80% of whom were female, and they found that depression and anxiety in patients with RA is associated with increased disease activity, worse treatment results and reduced quality of life. The above sheds a light on the importance of screening of depression among RA patients and early treatment as soon as possible. The present study also showed that forty-two (77.8%) of our patients had fatigue (extreme tiredness and inability to function due to lack of energy) which corresponds with a literature review by *Taylor et al. (2016)*[10] reported unacceptable levels of fatigue remained in a high incidence of their patients, despite aggressive treatments.

We also studied pain, which is a disabling factor in RA patients, and we found generalized pain in twenty-eight (51.8%) patients. In addition to high incidence of joint

pain in forty-seven (87%) patients with an average of 7 joints. We also found a significant relation between increase in VAS score and affection of BADLs elements like (dressing, grooming, and physical ambulation) and a highly significant relation between rise in VAS score and IADLs elements (shopping & food preparation) and a significant relation with housekeeping. We also found an overall strong correlation between increased pain and increased functional affection in RA patients as reflected by a highly significant correlation between VAS score and both BADL and IADL. This was in agreement with *Martinec et al. (2019)*[11] who specified that pain and functional ability have an important effect on quality of life in RA patients through limitations and bad physical feedback. Also, they demonstrated that negative pain experience was significantly associated with worse social involvement. We found that pain also affected sleep quality, this reflected by a significant relation between rise in VAS score and; increased restless sleep, not getting enough sleep to feel rested upon waking in the morning, and awaken during the sleep time and having trouble falling asleep again. Many elements of sleep quality were affected among our study population as; affection of sleep duration among all participants, nine (16.7%) participants only responded that they were feeling rested most of the time when waking up in the morning, and forty-three (79.6%) participants almost always had a trouble falling asleep. Thirty-two (59.3%) patients needed more than 30 minutes to fall asleep, and only four (7.4%) participants felt they had the sleep they needed. There was an overall moderate to severe affection of sleep. These findings are in parallel with a cross-sectional study *in (2021), by Tabaraii et al.*[12] who found that mood and sleep were the most important reasons for decreased self-rated wellness score in patients with RA. When we assessed the relation between disease activity and sleep quality elements, a strong relation between increased disease activity and

decreased quality of sleep was detected, and affection of many elements of sleep scale. This is reflected by a highly significant relation between rise in DAS28 score and; increased restless sleep, decreased feeling rested upon waking up in the morning, increased troubles falling asleep, and increased waking up during the sleep and inability to sleep again. There was also a significant relation between rise in DAS28 score and increased waking up short of breath or with a headache. Regarding the relation between DAS28 and total score of MOSS no significant relation was noted. However, there was a strong correlation between poor sleep quality in RA patients and functional affection reflected by a highly significant correlation between BADL, IADL, MOSS score. *Tański et al. in (2022)*[13] performed a meta-analysis focused on quality-of-life of 2507 RA patients with sleep affection and they found that sleep affection is common among patients with RA and correlate negatively with daily activity and quality of life scores in the physical and psychological domains. Also, *Sariyildiz et al. (2014)*[14] reasoned sleep affection in RA patients to multifactorial disease-related causes like the disease activity, depression, pain, fatigue, functional and radiological deterioration.

Another finding of the present study was education level and its contribution to activity of RA. Thirty-six (66.66%) of our study population were educated and eighteen (33.3%) patients were illiterates. We found that educational level has an impact on quality of life and activity of RA. There was significant relation between increased level of education and better basic life activities reflected by higher BADL score and decreased disease activity. This is in parallel with *Fatima et al. in (2021)*[15] found that in RA patients, mortality was associated with, lower education level. Besides, *Yu et al. in (2019)*[16] stated that higher educational level is a predictor of remission.

Regarding the visible physical affection like deformity, we found that more than half of our patients had visible deformity and there was a highly significant relation between increased disease duration and incidence of deformity indicating that disease duration is an important factor in developing deformity. This is consistent with *Abasolo et al. (2019)*[17] who studied a cohort of RA patients and followed up in a real-life clinical setting and found association between radiological joint damage and disability.

LIMITATIONS: Finally, the study has some limitations. First, the multiple contributing factors and cross-sectional data used limits causal conclusions about the direction of the relationships between disease activity, sleep, depression, pain severity, and functional disability therefore, longitudinal study is needed to help detecting causal direction. Second, the majority of the study participants were women, which somehow affects generalization of study results. Third, late intake of biologics among study population may have led to misrepresentation of effects of biologics on patients' functional status and quality of life. Lastly, these patients were recruited while presenting to a tertiary care hospital clinic, this may lead to underestimation of actual results due to reporting bias.

RECOMMENDATIONS: There is a pressing need for including screening for ADLs and sleep quality in regular examination and follow up to monitor the disease, there is also a need for evidence-based algorithm on implementation of sedatives and antidepressants in treatment of RA.

Conclusion:

Functional activities of daily living and sleep quality are strongly correlated with disease activity in RA patients and they are multifactorial in origin and related to pain, fatigue, depression, educational level and physical deformity.

Conflicts of Interest: The authors state that the publishing of this paper is free of any conflicts of interest.

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العلاقة بين مقياس النشاط المرضى (DAS28) والتقييم الوظيفي فى مرضى الروماتويد المفصلي

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الخلفية: يتميز مرض الروماتويد المفصلي بالتهاب المفاصل المزمن بالإضافة إلى إصابة أجهزة الجسم خارج المفاصل. عند إدارة التهاب المفاصل الروماتويدي ، يتم تقييم نشاط المرض من خلال درجة النشاط المرضي (DAS28) باستخدام سرعة الترسيب ESR على فترات منتظمة ويتم تغيير العلاج وفقًا لنشاط المرض. على الرغم من أن العديد من الدراسات قد أكدت على درجة DSA28 لمراقبة تحسن التهاب المفاصل الروماتويدي على العلاجات ، فقد قيمت القليل من الدراسات ما إذا كان هناك تحسن متزامن في وظائف الحياة اليومية ونوم المرضى أم لا.

الهدف: تقييم العلاقة بين نشاط مرض التهاب المفاصل الروماتويدي (RA) باستخدام درجة DAS28 مع سرعة الترسيب (ESR) وبين الحالة الوظيفية التي تعكسها أنشطة الحياة اليومية (ADLs) ودرجات جودة النوم.

المرضى والطرق: خضع أربعة وخمسون مريضًا من مرضى التهاب المفاصل الروماتويدي للتاريخ المرضي ، والفحص السريري الاكلينيكي ، والتحاليل ، وتقييم نشاط المرض باستخدام درجة DAS28 ، وأنشطة الحياة اليومية ADLs الأساسية والفعالة (BADLs و IADLs) ، وجودة النوم من خلال مقياس نوم دراسة النتائج الطبية (MOSS-S) .

النتائج: كانت أعمار المرضى تتراوح بين عشرون إلى ست وستون عاما (٢٠-٦٦) و متوسط عمر المرضى كان ٤٦,١١ ± ١٠,١٩ سنة ، وكانت مدة المرض تتراوح من ربع عام إلى ثمان وعشرون عاما (٠,٢٥ – ٢٨) بمتوسط أعمار(٥,٥ ± ٢,٥). أظهرت الدراسة أن متوسط درجة النشاط المرضي DAS28 كان 4.63 ± 1.43 . ووجدت تأثر متوسط لأنشطة الحياة الأساسية BADL في واحد وعشرون مريضاً بنسبة 38.8٪ وتأثر شديد في أنشطة الحياة الأساسية BADL في خمس مرضى فقط بنسبة ٩,٢٪ . في حين أظهرت تأثر متوسط في أنشطة الحياة الفعالة IADLs في خمس وعشرون مريضاً بنسبة ٤٦,٣٪ مع عدم وجود مرضى يعانون من تأثر شديد فيها. كان هناك ارتباط وثيق ذو دلالة عالية (r = 0.564 ، قيمة p <0.01) بين زيادة درجة أنشطة الحياة الأساسية BADL وزيادة درجة أنشطة الحياة الفعالة IADL ،و ارتباط وثيق بين زيادة درجة مقياس جودة النوم MOSS وانخفاض درجة أنشطة الحياة الأساسية BADL (r = 0.532 ، قيمة p <0.01) ، وكان هناك ارتباط وثيق بين انخفاض درجة أنشطة الحياة الفعالة IADL وزيادة درجة مقياس جودة النوم MOSS (ص = ٠,٤٨٥ ، قيمة ف <٠,٠١).

الخلاصة: يوجد ارتباط وثيق بين أنشطة الحياة الأساسية ADLs وجودة النوم MOSS و بين نشاط المرض DAS28 (ESR) لدى مرضى التهاب المفاصل الروماتويدي وهو متعدد العوامل في الأصل ويتعلق بالألم والتعب والاكتئاب والمستوى التعليمي والتشوه البدني.