

Personality traits and associated changes in women with lupus

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ABSTRACT

Objective: The objective of the present study was to evaluate personality traits and associated changes in female patients with Systemic Lupus Erythematosus (SLE), linking variations in disease activity with alterations in personality traits. **Patients and Methods:** Twenty patients from the Rheumatology Outpatient Clinic at the University Hospital of Universidade Federal de Mato Grosso do Sul (UFMS) participated in this study. Patients were re-evaluated three and six months after the initial evaluation for the presence of Psychiatric Disorders (especially personality changes) and lupus activity. The Adjustment/Neuroticism Factorial Scale (AFS) and Systemic Lupus Erythematosus Disease Activity Index (SLEDAI), along with clinical psychiatric and rheumatologic assessment, were used to evaluate patients. **Results:** No significant correlation between SLEDAI and AFS scores was observed. According to the AFS, the scores of six patients (30%) were suggestive of Personality Disorders, but psychiatric evaluation confirmed this diagnosis in only two (10%) patients. A typical personality pattern or prevalence of a specific Personality Disorder was not observed; however, an important prevalence of Depression (65%) was observed. **Conclusions:** Our findings showed that patients with lupus can develop different types of behavior and psychiatric symptoms without a typical personality trait. No significant correlation between personality changes and disease activity was observed.

Keywords: psychiatric disorders, personality changes, systemic lupus erythematosus.

INTRODUCTION

Systemic Lupus Erythematosus (SLE) is an autoimmune, multi-system, chronic inflammatory disease of unknown origin, characterized by the presence of autoantibodies. It is associated with different clinical manifestations and periods of exacerbation and remission.¹ The prevalence of SLE is increased in females of childbearing age and with a family history of autoimmune disease.^{2,3}

The multifactorial origin of the disease, involving hormonal, genetic, environmental, and infectious (viral) factors, and psychological stress, regarded by several authors as a parti-

cularly important triggering factor for the development and exacerbation of the disease,^{2,5} is a consensus in the scientific community.^{1,3,4}

The Central Nervous System (CNS) is frequently affected, giving rise to neurologic and/or psychiatric symptoms.^{1,3,6} Some studies have correlated those clinical manifestations to the presence of specific antibodies, such as anti-P ribosomal, anti-SSa, anti-DNA, and anti-phospholipid, among others.^{7,8,9} It has been speculated that the activation of the immune system can result in changes in neurotransmitters and, consequently, in behavior.¹⁰

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In 1999, a subcommittee of the American College of Rheumatology (ACR) classified 19 neuropsychiatric syndromes related with SLE. Among these, the following were classified as psychiatric syndromes: acute confusional state, cognitive disorders, psychosis, and mood and anxiety disorders.¹ However, personality changes were not mentioned.

On a review of the literature on personality changes in SLE patients, Ayache & Costa¹¹ observed that several authors concluded that psychological factors (including personality traits) are important co-determinants, triggers, or intensifiers of the disease. Other authors observed that personality changes can be secondary to the psychological stress imposed by SLE, the disease activity in the CNS, and/or the use of medications like immunosuppressors and corticosteroids.¹²⁻²⁸

Vertzman & Pinheiro, *apud* Lemle,²⁹ are developing, at Universidade Federal do Rio de Janeiro (UFRJ), the Project "Narcissistic Pathologies and Autoimmune Diseases: a Psychoanalytic Comparative Study". According to those authors, based on clinical experience and some references in the literature, lupus patients would have a narcissistic psychological configuration (they would be selfish, arrogant, self-absorbed). Therefore, they decided to undertake a comparative study to carry on a qualitative assessment (according to the psychoanalytical point of view) of patients with SLE and melancholy. So far, they have reported different types of psychological organization in SLE patients instead of a higher incidence of narcissistic personalities.

Nery *et al.*³⁰ evaluated 71 SLE patients for the presence and severity of depressive disorder; major depression and a tendency for more severe forms of lupus were diagnosed in 23% of the patients. Depression severity was directly related with disease activity and functional incapacity. Those authors admit the hypothesis that major depression in patients with CNS activity would be a manifestation of the disease mediated by autoimmune mechanisms, which deserves further investigation.

A study to estimate the prevalence of psychiatric disorders in SLE patients and its association with anti-P antibodies was undertaken by Nery *et al.*³¹ They selected 71 female patients with SLE without neurological manifestations. Psychiatric disorders more prevalent in the last 30 days included mood (26.8%) and anxiety (46.5%) disorders, which were also more prevalent throughout their lives (mood 60%, and anxiety 52.1%). Clinical and laboratorial parameters, including presence or absence of anti-P antibodies, disease activity, and accumulated damage index, did not differ among individuals with and without psychiatric manifestations. The authors concluded that mood and anxiety disorders are the most common

psychiatric disorders observed in female SLE patients without neurological manifestations. Mild/moderate types of those psychiatric disorders are not associated with anti-P antibodies in SLE patients.

Therefore, a review of the literature on the presence of a personality pattern in lupus patients is inconclusive. The results of studies on personality changes secondary to the disease or medication are controversial. Evaluation of lupus patients is complex due to the variety of factors that can interfere with it. Due to the need of further studies to elucidate this matter, we decided to undertake this study, whose objectives include: a) to evaluate personality traits and possible implications in female patients with lupus, trying to relate changes in disease activity with personality changes; b) to determine whether or not there are one or more characteristic personality patterns in the study group; and c) to determine the presence of behavioral patterns or psychiatric disorders associated with the disease, both during remission and active disease.

PATIENTS AND METHODS

Study Population

Twenty patients followed-up at the Outpatient Collagenosis Clinic of the Rheumatology Department of the University Hospital (UH) of Universidade Federal de Mato Grosso do Sul (UFMS) participated in this study. The project was submitted to the Ethics Committee of UFMS and approved on 04/27/2004 (protocol # 380/2004).

Female patients, 18 to 50 years old, with a diagnosis of SLE according to ACR³² criteria were included in the study. Illiterate patients, with a score lower than expected for their age and educational background in the Mini-Mental State Exam;³³ with severe psychiatric disorders or using psychotropic drugs on the first evaluation; with other associated chronic diseases; and suspected or confirmed pregnancy were excluded.

Patients were consecutively selected, from May to June 2004, for the study after a review of their records. Those that fulfilled the above mentioned criteria were invited to participate in the study. Forty patients were initially selected, but we were not able to locate all of them and some of them did not agree to participate in the study. Therefore, the study population, which can be considered non-probabilistic and by judgment, was composed of 20 patients.

Evaluation tools

The following scales were used besides the clinical psychiatric and rheumatologic evaluations:

a) Adjustment/Neuroticism Factorial Scale – AFS³⁴

This scale evaluates a dimension of the human personality called Emotional Adjustment/Neuroticism, also known as Factor N. According to Hutz & Nunes,³⁴ factor N has a close correlation with personality disorders catalogued by current psychiatric diagnostic systems, such as the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders, DSM-IV,³⁵ and the International Classification of Mental and Behavioral Disorders, CID-10.³⁶

This tool consists of 82 items distributed in the following sub-scales:³⁴

N1 (Vulnerability – 32 items): High scores suggest Dependent Personality Disorder, while very low scores suggest Avoidant Personality Disorder.

N2 (Psychosocial Disadjustment – 14 items): High scores suggest Personality Disorders, such as Antisocial and Borderline. The significance of low scores is not known.

N3 (Anxiety – 25 items): High scores suggest Anxiety disorder; low scores suggest symptoms such as impulsivity and high risk behavior.

N4 (Depression – 20 items): High scores suggest Depressive Disorders; low scores suggest difficulty to detect and face problems, which might be directly related with strategies to face diseases.

To calculate the general score, the scores of the subscales (N1, N2, N3, and N4) should be added. General scores of 80 to 120 are expected for the majority of the population. Higher or lower scores might suggest a Personality Disorder, requiring further investigation by a psychiatrist or psychologist.³⁴

From the score of each subscale, one can calculate the percentile score for each factor. A score higher than 70 or lower than 30 in any of those subscales may indicate a more specific psychological and/or psychiatric disorder.³⁷

b) SLEDAI – Systemic Lupus Erythematosus Disease Activity Index³⁸

The Systemic Lupus Erythematosus Disease Activity Index is used around the world to evaluate lupus activity based on clinical (rheumatologic) evaluation and standardized laboratorial tests. Total scores can range from 0 to 105 points. We adopted the classification recommended by Cook *et al.*:³⁹ inactivity (0 pts); mild activity (1 to 3 pts); moderate activity (4 to 7 pts); and severe activity (≥ 8 pts).

Evaluation and Follow-up Schedules

Clinical evaluations (rheumatologic and psychiatric) and application of the scales were done simultaneously with laboratorial tests, within one week, to compare possible changes in SLE

activity with personality changes. Patients were evaluated three and six months after the initial assessment to determine the presence of possible changes in AFS according to disease evolution and/or external factors, such as psychosocial stressors that could emerge in different moments. Therefore, we considered this a prospective cohort study.

Analysis of the Data

Descriptive and analytical statistical analysis were undertaken using the following tests: non-parametric Friedman test with Student-Newman-Keuls post-test; Chi-square test; and McNemar and Fisher's exact tests. Results are presented in the form of descriptive statistics, charts, and tables; for such, the SigmaStat software, version 2.0, was used, and relationships and differences were considered significant when $P < 0.05$.⁴⁰

RESULTS

Socio-Demographic Data

The study population was composed, mainly, by Africa-descendent (50%) and Caucasian (45%) patients; patients had a mean age of 31.75 ± 8.30 years (mean \pm standard deviation). The majority of the patients were married (60%) and housewives (55%); patients had a mean of 10.1 ± 2 years of schooling.

AFS and Psychiatric Evaluation Results

Table 1 shows general AFS scores on all three evaluations: on the initial assessment, 15% of the patients presented abnormal scores; on the 2nd evaluation, 26% had abnormal scores; and on the 3rd evaluation, 35% had abnormal scores. A significant relationship between AFS scores and the study moments was observed. This relationship was observed between the 1st and 2nd evaluations (McNemar test, $P = 0.019$) and between the 1st and 3rd evaluations ($P = 0.037$). A significant relationship was not observed between the 2nd and 3rd evaluations ($P = 0.118$). For this test, AFS scores were subdivided in: a) abnormal (lower than 80 or greater than 120 points), and b) normal (between 80 and 120 points). Together, our results indicate a reduction in the incidence of normal cases, according to the AFS, along time, and an increase in abnormal cases, especially for scores lower than 80 points. Among patients with "abnormal" scores, only one patient (5%) received a diagnosis of Personality Disorder after psychiatric evaluation.

On Table 2 we observe a lack of significant relationship between psychiatric evaluation and AFS scores (Chi-square

test, $P = 0.060$). Out of three (15%) patients classified as abnormal by the AFS, only one (5%) had a psychiatric diagnosis on clinical evaluation (Moderate Depressive Episode and Dependent Personality disorder). Besides, 14 patients (70%) with a psychiatric diagnosis had normal general AFS scores.

We also observed that 15 patients (75%) had one or two psychiatric diagnosis in T0. According to the clinical evaluation Moderate Depressive Episode (MDE), the only psychiatric diagnosis in 10 patients (50%), was the most prevalent diagnosis; MDE and Mild Mental Retardation were diagnosed in two patients (10%); and MDE and Dependent Personality disorder in one (5%) patient. One patient (5%) had a diagnosis of Bipolar Disorder and Borderline Personality Disorder; one (5%) patient, Alcohol Abuse and Tobacco Dependency; and only five (25%) patients did not have a psychiatric diagnosis in the initial evaluation.

Table 3 shows the number of patients and percentile scores of the AFS subscales in the initial evaluation: a significant relationship between percentile scores and AFS factors was not observed (Chi-square test, $P = 0.243$). For those tests, AFS scores were subdivided in: a) abnormal (less than 30 points and greater than 70 points), and b) normal (between 30 and 70 points).

As for factor N1, 40% of the patients had a score above than expected, suggesting possible Dependent Personality Disorder; however, in the psychiatric evaluation, only one (5%) patient had this diagnosis associated with MDE.

Regarding factor N2, only one (5%) patient had a score higher than expected, suggesting Anti-social and Borderline Personality Disorders. However, this was not confirmed in the psychiatric evaluation, although the patient received the diagnosis of MDE and Dependent Personality Disorder.

As for factor N3, the scores of 50% of the patients was higher than expected, indicating the presence of Anxiety Disorder; however, none of the patients was clinically diagnosed with this disorder.

Regarding factor N4, the scores of 30% of the patients were higher than expected, suggesting a depressive state. Among those, 15% had a clinical diagnosis of MDE; 10%, MDE and Mild Mental Retardation; and 5%, Bipolar Disorder and Borderline Personality Disorder.

On Table 4 one can observe that factor N1 scores in the first evaluation were significantly higher than in the 2nd and 3rd evaluations (Friedman test, $P = 0.007$; with Student-Newman-Keuls post-test, $P < 0.05$). Significant differences in AFS scores for factors N2, N3, and N4 were not observed among the different evaluations. Total standardized scores were significantly higher in the initial evaluation than in subsequent evaluations (Friedman test, $P = 0.005$; with Student-Newman-Keuls post-test, $P < 0.05$).

Table 1
General scores of the Emotional Adjustment/Neuroticism Factorial Scale (AFS) in the initial evaluation and at three and six months; Campo Grande, 2004-2006

AFS scores	Initial (n = 20)	3 months (n = 19)	6 months (n = 17)
	n° (%)	n° (%)	n° (%)
Abnormal (less than 80 points)	02 (10%)	05 (26%)	05 (29%)
Normal (80-120 points)	17 (85%)	14 (74%)	11 (65%)
Abnormal (more than 120 points)	01 (05%)	00 (00%)	01 (06%)

Table 2
Psychiatric diagnosis, according to ICD-10 criteria, in the initial psychiatric evaluation compared with AFS scores, Campo Grande, 2004-2006

Psychiatric Evaluation (ICD-10)	AFS Scores		Total
	Normal n° (%)	Abnormal n° (%)	N° (%)
Moderate Depressive Episode (MDE)	10 (50%)	—	10 (50%)
MDE and Dependent Personality Disorder	—	01 (05%)	01 (05%)
MDE and Mild Mental Retardation	02 (10%)	—	02 (10%)
Bipolar Disorder and Borderline Personality Disorder	01 (05%)	—	01 (05%)
Alcohol abuse and tobacco dependency	01 (05%)	—	01 (05%)
Without a psychiatric diagnosis	03 (15%)	02 (10%)	05 (25%)
Total	17 (85%)	03 (15%)	20 (100%)

ICD-10: International Diseases Classification of the World Health Organization – 10th review;
AFS: Emotional Adjustment/Neuroticism Factorial Scale.

Table 3
Number of patients and scores and percentiles of the AFS subscales in the initial evaluation, Campo Grande, 2004-2006

AFS Factors	AFS percentiles			Total
	Less than 30 points	Between 30 and 70 points	More than 70 points	
	n° (%)	n° (%)	n° (%)	n° (%)
N1	03 (15%)	09 (45%)	08 (40%)	20 (100%)
N2	06 (30%)	13 (65%)	01 (05%)	20 (100%)
N3	03 (15%)	07 (35%)	10 (50%)	20 (100%)
N4	06 (30%)	08 (40%)	06 (30%)	20 (100%)

AFS: Emotional Adjustment/Neuroticism Factorial Scale; N1: Vulnerability Subscale; N2: Psychosocial Disadjustment Subscale; N3: Anxiety Subscale; N4: Depression Subscale.

Table 4

Percentiles of each factor and sum of standardized AFS scores in the initial evaluation and at 3 and 6 months, Campo Grande, 2004-2006

Tempos analisados	Percentiles per factor				Sum of standardized scores
	N1	N2	N3	N4	
Initial	59.47 ± 31.55*	39.63 ± 26.66	64.55 ± 28.34	53.59 ± 30.93	102.03 ± 13.58
3 months	47.27 ± 36.09	29.34 ± 23.74	51.84 ± 31.22	38.92 ± 31.19	95.19 ± 14.29
6 months	42.90 ± 34.61	23.82 ± 29.18	45.14 ± 38.00	39.38 ± 30.20	92.05 ± 17.46
P	0.007**	0.126	0.054	0.112	0.005**

*Mean ± standard deviation

**Friedman test with Student-Newman-Keuls post-test ($P < 0.05$), scores in M0 are significantly greater than in M1 and M2.

AFS: Emotional Adjustment/Neuroticism Factorial Scale; N1: Vulnerability Subscale; N2: Psychosocial Disadjustment Subscale; N3: Anxiety Subscale; N4: Depression Subscale.

Table 5

Disease activity, according to SLEDAI scores, in relation to AFS scores in the initial evaluation and at 3 and 6 months, Campo Grande, 2004-2006

Pontuação na SLEDAI	Patients according to AFS scores					
	Initial (n=20)		3 months (n=19)		6 months (n=17)	
Disease activity	Normal	Abnormal	Normal	Abnormal	Normal	Abnormal
	n° (%)		n° (%)		N° (%)	
Remission (0 points)	00 (00%)	01 (05%)	02 (11%)	00 (00%)	02 (12%)	00 (00%)
Mild activity (1-3 points)	02 (10%)	00 (00%)	01 (05%)	01 (05%)	01 (06%)	02 (12%)
Moderate activity (4-7 points)	04 (20%)	01 (05%)	07 (37%)	04 (21%)	02 (12%)	02 (12%)
Severe activity (8 points or more)	11 (55%)	01 (05%)	04 (21%)	00 (00%)	06 (35%)	02 (12%)
P (Chi-square test)	0.088		0.348		0.371	

SLEDAI: Systemic Lupus Erythematosus Disease Activity Index; AFS: Emotional Adjustment/Neuroticism Factorial Scale.

Table 5 shows that percentile and general AFS scores had a trend to decrease along the study, although a statistically significant difference was not observed.

2nd evaluation: $P = 0.348$; 3rd evaluation: $P = 0.371$) (Table 5). Therefore, we did not observe a relationship between personality disorders and SLE activity.

RELATIONSHIP BETWEEN AFS AND SLEDAI RESULTS IN DIFFERENT EVALUATIONS

A significant relationship was observed between disease activity, according to SLEDAI scores, and the duration of the treatment. A reduction in the incidence of moderate/severe disease and an increase in the incidence of remission/mild disease were observed during the study.

A significant relationship between SLEDAI and AFS cores was not observed (Chi-square test, 1st evaluation: $P = 0.088$;

DISCUSSION

The majority of the patients were of African descent, similar to the results of several studies reported in the literature.¹⁴⁻¹⁷ The mean age of the patients was similar to that of the majority of the studies;¹⁴⁻¹⁷ however, the mean age of the patients in other studies^{41,23} was higher. Most patients were married, similar to the studies of Segui *et al.*¹⁸ and Dobkin *et al.*²³

The school level of the study patients (10.1 ± 2 years) was lower than that reported by international studies.^{41,24} Approxi-

mately 55% of our patients were housewives; this data also differs from that of most international studies like Segui *et al.*,¹⁸ in which 25% of the patients were housewives.

We observed a reduction in the incidence of cases classified as normal by the AFS and an increase in those classified as abnormal along the study. We believe that this can be partially explained by the fact that, in the 2nd evaluation, six (46.1%) patients, initially diagnosed with depression, were treated with antidepressants, while 4 (30.7%) the same diagnosis in the 3rd evaluation. The medication could have reduced the scores of the depression and anxiety subscales. However, a normalization of the scores is expected with the use of the appropriate medication and not a reduction to levels below normal.

We also did not observe a significant relationship between psychiatric evaluation and AFS scores. Therefore, the present study did not confirm the correlation between AFS scores, according to the literature,³⁴ and the current nosology.

The prevalence of psychiatric disorders was very high (75%) in our study population. Our incidence was higher than those reported by Waterloo *et al.*⁴¹ (50%) and Hutchinson *et al.*⁴² (44%). The small number of patients in the present study might explain this difference.

According to the literature, Depression is significantly related with SLE. In the present study, the prevalence of Depression in the 1st evaluation was 65%, which is higher than that reported by Waterloo *et al.*⁴¹ (28%), Hutchinson *et al.*⁴² (27%), and Nery *et al.*³⁰ (23%). Once more, we believe that the small number of patients in our study could explain this difference.

One patient (5%) had a diagnosis of Dependent Personality Disorder. We did not find in the literature any references to this diagnosis in SLE patients. However, some studies^{41,23} detected psychological aspects consistent with this disorder in SLE patients; but in those studies, the authors did not report this diagnosis.

Bipolar Disorder and Borderline Personality Disorder were diagnosed in one (5%) patient. Once more, the literature does not have any references to this disorder in SLE patients; however, some studies also reported symptoms typical of Borderline Personality Disorder^{41,23,43} in SLE patients, but the authors did not report this diagnosis in their evaluations.

Mean percentile and general AFS scores showed a tendency to decrease during the study, although a statistically significant difference was not observed. As mentioned previously, we believe that this reduction could be related to the use of antidepressants by some patients on the 2nd and 3rd evaluations. However, not all patients followed the treatment prescribed by the psychiatrist.

Therefore, as the authors have stated,³⁴ we observed that AFS scores are only indicative of Personality Disorders.

Only one patient (5%) had a clinical diagnosis of Dependent Personality Disorder confirmed by general and specific (N1) scores. However, despite the diagnosis of depression (MDE), her percentile score for this factor (N4) was within normal parameters. The other patient who also had a clinical diagnosis of Personality Disorder (Borderline) had normal AFS scores and, paradoxically, a low score (5 pts) in the subscale related with this factor (N2).

As can be seen in Table 3, the percentile scores of the subscales of a substantial proportion of the study population indicated changes compatible with Personality Disorders. However, only two (10%) patients received this diagnosis, according to the clinical psychiatric evaluation, which is still considered the diagnostic gold standard. According to Bernick,⁴³ even before the advent of evaluation scales, careful observation has always been the most invaluable source of information on psychiatric phenomena. However, it should be emphasized that, although our psychiatric evaluation was based on IDC-10 criteria,³⁶ it is still extremely subjective, and the scale is a more objective evaluation method.

Our findings are similar to those of Vertzman & Pinheiro, *apud* Lemle (2005),²⁹ who, even using a different referential (psychoanalytical), reported that SLE patients have their own, homogenous, and specific psychological model.

Due to the reduced number of patients in the present study, we cannot extrapolate our results to all SLE patients; however, we observed, when analyzing their medical records, that the majority of patients with more benign evolution during the study period did not show strict adherence to rheumatologic and psychiatric treatments. According to Fráguas Jr.,⁴⁴ effective Depression treatment improves the baseline medical condition and quality of life of patients, reducing the inadequate use of medical services.

The present study did not detect a relationship between personality changes and SLE activity. This data is similar to that reported by Ishikura *et al.*,²² who also did not observe a relationship between the psychological characteristics of their patients and SLE activity. However, it differs from the results reported by Segui *et al.*,¹⁸ Ward *et al.*,²⁴ and Yuko *et al.*,²⁵ who observed a relationship between psychiatric symptoms (including personality disorders) and disease activity.

To conclude, we observed, in the present study, an important prevalence of psychiatric disorders (75%), but not Personality Disorders (only 10%). Moderate Depressive Episode (MDE) was the most common diagnosis, affecting approximately 65% of the patients. But a typical personality pattern or prevalence of a specific Personality Disorder was not observed.

A significant relationship between the psychiatric diagnosis (ICD-10 criteria) on the 1st evaluation and AFS scores and per-

centiles was not observed. A significant relationship between SLEDAI and AFS scores was also not observed during the study period; therefore, the association between personality changes and disease activity was not confirmed. According to statistical probabilities, it is possible that, if we had a larger study population, several associations among SLE aspects and psychiatric disorders, which were not confirmed here, would be statistically significant. Therefore, further studies with a larger number of patients are necessary to accurately assess those hypotheses.

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